

EUROPEAN SOFTWARE & SERVICES MARKET

1980 - 1985

INSURANCE SECTOR

INPUT

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1990-1995

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**Market Analysis Programme in Europe
(MAPE)**

***European Software and Services Market,
1990-1995—Insurance Sector***

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Abstract

This report analyses the European insurance industry and its growth potential over the period 1990-1995. The insurance industry is a key growth area in Western Europe for software and services vendors as faster and more efficient systems and more accurate information are required by companies looking for strategies that will enable them to compete in the evolving single European market.

The report provides an assessment of the current size of the market by delivery mode and by key country market. Also included are sections on the regulatory and competitive environment, including identification of leading vendors by delivery mode and the major development forces driving market growth. The user environment is discussed and profiled and strategy considerations are offered to provide insight into how to take advantage of the opportunities afforded by this volatile market.

The report contains 137 pages and 64 exhibits.

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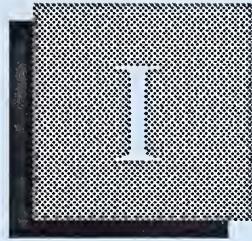
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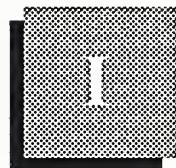
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Introduction

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Introduction

A

Scope and Objectives

This report, part of INPUT's Market Analysis Programme for the computer software and services industry, examines the Western European market for insurance for 1990 through 1995.

The insurance industry is a key growth area in Western Europe for software and services vendors as faster and more-efficient systems and more-accurate information are required by companies looking for strategies that will enable them to compete in the evolving single European market.

Intensification of competition within the industry is causing vendors to reassess their strategies with regard to pricing, distribution and promotion of their products and to develop joint ventures and alliances targeting the insurance and financial services businesses. The primary objectives of this report are to:

- Provide a quantitative assessment of present and future insurance software and services markets through estimates and forecasts of user revenues
- Provide a qualitative assessment of the underlying forces shaping the insurance market and the surrounding competitive environment
- Identify the technological and strategic issues that will impact the insurance software and services market

This report covers the insurance services markets in the U.K., France, West Germany, Italy, the Benelux countries, Scandinavia and Spain. INPUT's forecasts include purchases in Western Europe of data from international software and services vendors. Revenue to domestic ven-

dors from sales outside Europe is excluded. Forecasts are derived from corporate user expenditures on software and services, broken into six delivery modes:

- Processing services
- Network services
- Software products
- Professional services
- Systems integration
- Turnkey systems

B**Methodology**

This report has been compiled through a series of interviews with selected Western European vendors, industry experts and users as well as reviews of vendor-produced literature.

Twenty interviews were conducted—either face-to-face or by telephone—with leading vendors active in the insurance software and services market. Thirty interviews were with senior managers responsible for information services within user organisations.

An analysis of the research sample, both vendor and user, is provided as Appendix C.

C**Report Structure**

This report examines the insurance software and services industry in the following sections:

Chapter II is an Executive Overview, which provides a summary of the essential points of the entire report.

Chapter III sets out INPUT's definitions and general background material on the industry, providing INPUT's estimates and forecasts of user expenditures on insurance software and services. These forecasts are broken down by insurance type, by country market and by delivery mode. This chapter also contains an examination of the industry structure and a review of key market developments in Europe.

Chapter IV examines the key technological, economic and market-related issues affecting users and the consequent product and marketing issues.

Chapter V presents the report's conclusions and major strategy recommendations.

Appendix A contains INPUT's definitions for terms used in the report.

Appendix B gives the European exchange rates used in compiling market forecasts.

Appendix C provides an analysis of the research sample.

Appendix D contains the vendor questionnaire.

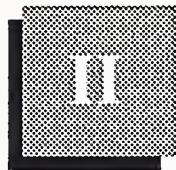
Appendix E contains the user questionnaire.

Appendix F gives forecasts for the period 1990-1995 by European country and by individual year.



Executive Overview

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Executive Overview

A

European Insurance Companies Face Major Information Systems Rethink

European insurance companies are being forced to fundamentally rethink their approach to information systems as they face the need to create fully electronic systems to compete effectively in the 1990s. These new demands are driven by EEC deregulation and the competitive move by the banking establishment into the insurance field. The resultant demand for software and services is creating a rapidly developing opportunity for vendors that offer networking services, specialised software and professional services. These challenges are listed in Exhibit II-1.

EXHIBIT II-1

The Insurance Industry Information System Challenge

- Pan-European insurance market
- High information insurance market
- High information system expenditure
 - 15% of operating expenses
- Demand for flexible, responsive systems

Investment in information technology is running at 15% of insurance companies' operating expenses. The large insurance companies seeking to become pan-European are prepared to allocate considerable financial resources to information systems, mirroring the activities of the banks prior to the "Big Bang" in the City of London. In insurance, the "Big Bang" is the dual advent of the 1992 Single Insurance Market initiative and the move by the banking industry to offer insurance services. The

link between banking and insurance has been further strengthened by a spate of merger and acquisition activity and the establishment of alliances between banks and insurance companies throughout Europe. The exploitation of the obvious synergy between banking and insurance services to develop complete financial services portfolios will require considerable investment in information technology.

Firstly, software and services vendors have the chance to satisfy the requirements of pan-European-orientated companies for integrated information systems and networks. Specific vendor opportunities include the provision of financial analysis programs, decision support tools, electronic information services (EIS), electronic data interchange (EDI) systems, application tools and custom software solutions. These large companies need solutions to their applications backlog, and at the same time require flexible systems and systems compatibility.

Secondly, in local insurance industry markets there is considerable opportunity for vendors to provide software products and turnkey systems. Agents and brokers will be placing contracts for bespoke software with companies that understand the user's business and have established a presence throughout Europe.

Insurance companies are looking for changes in distribution channels in order to improve levels of service and develop expertise in systems and network integration, as well as use of the latest technologies. Insurers are looking to be leading-edge players in the electronic revolution of the 1990s. Professional services companies will need a thorough understanding of the insurance business to win these development contracts. Software and services opportunities are summarised in Exhibit II-2.

EXHIBIT II-2

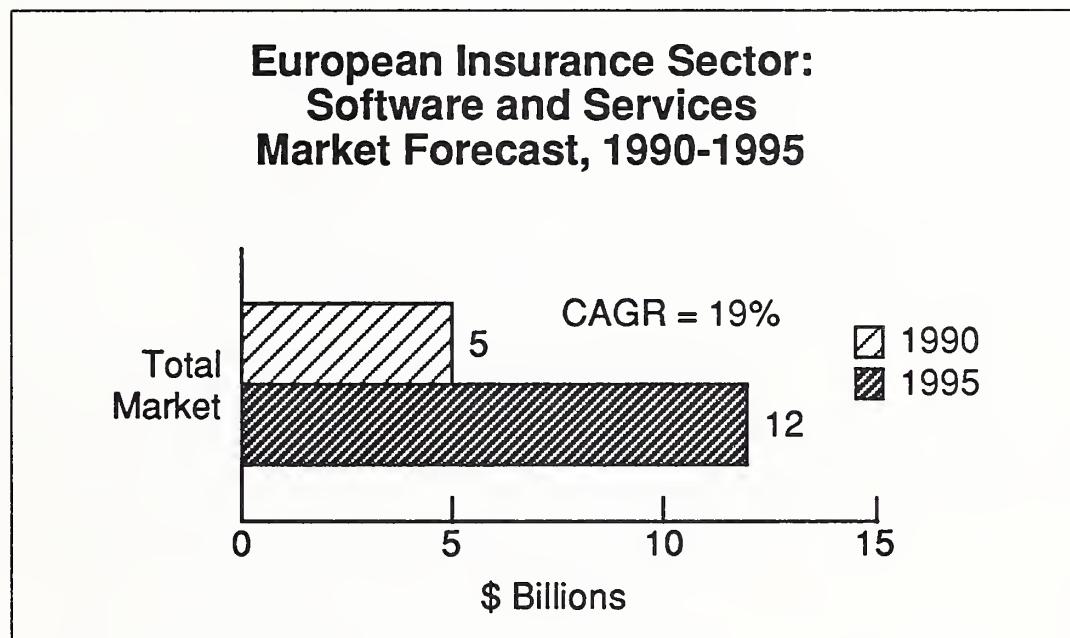
Software and Services Opportunities

- Systems and network integration
 - New products and services
 - Competitive edge
- Software products
 - Custom software
 - Packaged solutions

Software and services vendors need to offer products and services that give the large insurance companies a competitive edge over the banks. Systems need to be flexible and compatible. Vendors should also provide software products that enable local insurers to interface effectively with the head office.

The volatility of the European insurance industry will have a considerable impact on information and communications technology expenditures. INPUT forecasts that the insurance sector software and services market will be worth \$12 billion in 1995. The CAGR will be 19% over the forecast period, as shown in Exhibit II-3.

EXHIBIT II-3

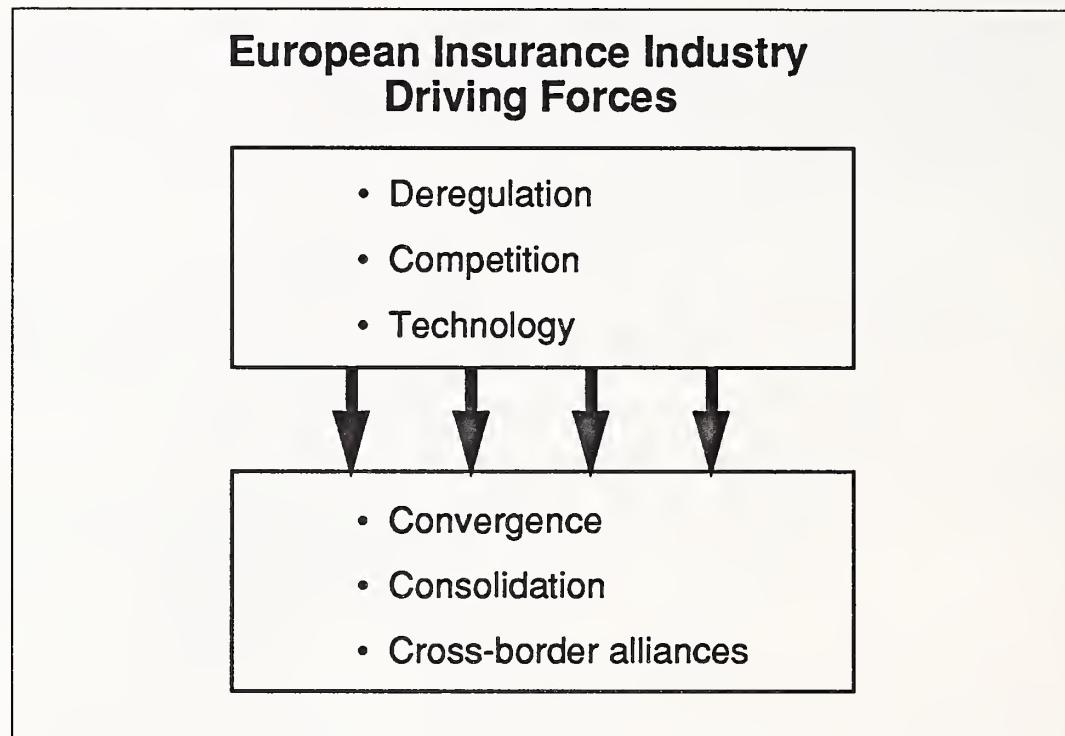
**B**

The Insurance Industry: A Period of Rapid Change

Insurance in Western Europe is undergoing a period of profound change. Insurance companies have been slow to respond to the changes surrounding them compared to other sectors (such as banking), sheltered as they are in some markets by regulators' convictions that insurance is more important to consumers than other financial services, and in other markets by the near-impenetrability of insurers' products and financial statements.

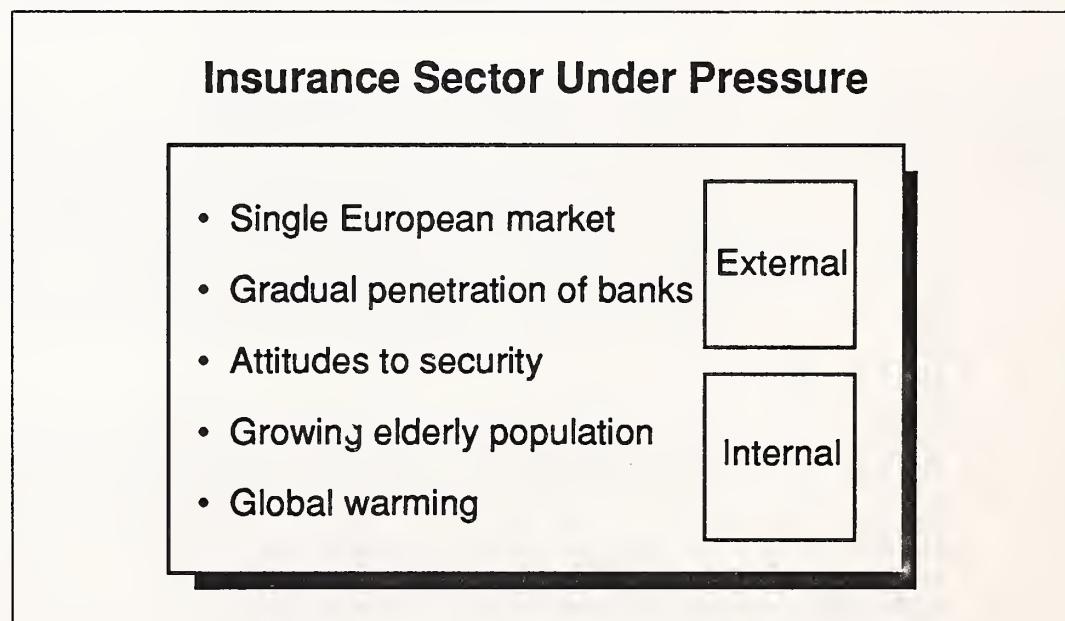
This change has been caused by a complex interaction of forces—including deregulation, competition, rapid technological developments and the gradual penetration of banks into traditional insurance markets. Exhibit II-4 shows that convergence, consolidation and cross-border alliances are occurring all over Western Europe in the same manner as happened with banks and investment houses. However, insurers are concerned about the entry of the banks into their traditional markets and are having to expand rapidly when profits are contracting, in a belated attempt at becoming international all-purpose operations. Meanwhile, insurers are operating in an extremely competitive environment within their domestic markets.

EXHIBIT II-4



Additionally, there is the challenge of the single European market as well as the gradual entry of banks into the insurance business. Within the insurance business itself there are other, more pressing concerns: a growing elderly population, the effects on the climate of global warming and the increasing (apparent) negligence of large multinationals with regard to security as they try to improve efficiency and maintain competitiveness in an increasingly cut-throat market. Exhibit II-5 shows pressures on the insurance industry.

EXHIBIT II-5



C**Key Operational Issues**

The key operational issues identified amongst insurance companies seeking to compete with banks are:

- Human resources
- Information technology
- Cost containment

The required refocussing of staff responsibility is resulting in increased use of information technology. However, there is still enormous scope for reducing the volume of clerical tasks and using technology to improve customer service and product delivery. As a result, INPUT anticipates that the industry will invest heavily in client-related rather than policy-related systems. A major opportunity is in innovative technologies such as image processing and expert systems.

However, one of the problems in the insurance industry—although not exclusively an insurance problem—is that past investment in technology has failed to deliver the extra service capability or financial return expected. Future investment needs to be clearly focussed so that real progress can be made in insurance service levels and product distribution whilst not increasing overheads.

The insurance industry has been trying to resolve the human resources versus investment in technology dilemma since the mid-1970s, and a few companies have achieved full implementation plans. Their systems carry out the essentials, such as:

- Claims registration
- Claim acknowledgement
- Third-party instruction (for adjustors, surveyors, et al)
- Claim payment
- Claim statistics

There remain opportunities for software and services vendors in that a claims operation of insurers or brokers deals with a number of different business areas, and as a result the provision of statistics is a key element of the internal service and support function. For example, corporate management, underwriters and marketing are all internal clients of the claims department, each with different information requirements, each a key area of the business and each requiring network and systems integration, software products and professional services.

Many insurance companies are looking for competitive edges in service differentiation and require a high level of information, to maintain:

- Service level of claims
- Customer support opportunities
- Trends in complaints

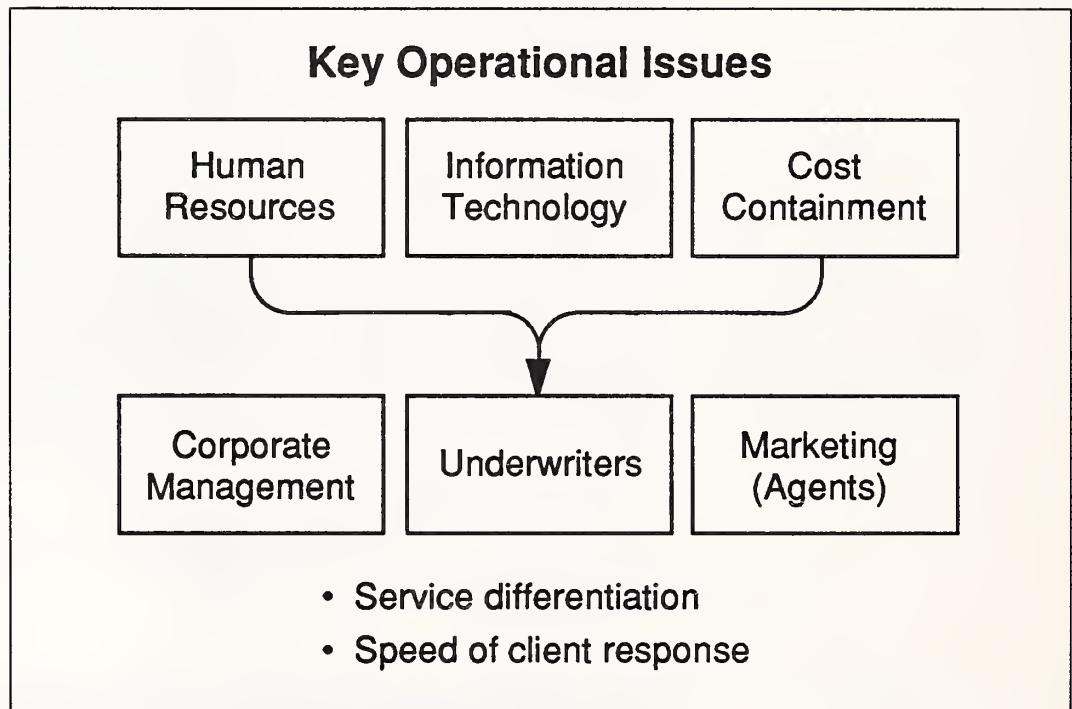
- Renewal positioning of claimants
- Average time between notification and settlement

Database management software and application software that runs on efficient, fast networks will speed this process.

The burden of internal service will increase as underwriters attempt to target precise groups and produce different rates and marketing profiles. To achieve a high level of service, there will be an increasing need for EIS and financial analysis software.

General information on clients, trends and service opportunities will require integrated systems, application software products and, in the less developed markets, turnkey systems. The impact of these three key groups is illustrated in Exhibit II-6.

EXHIBIT II-6



D

A Plethora of Opportunities

As insurance companies strive to compete more effectively, they are offering larger gamut of products and services that compete with those of banks. However, in order to effectively carry out large-scale systems development and systems and network integration projects, insurers are looking for systems and network integrators with expert knowledge of the insurance industry (or even of a specific subsector of the industry), as well as experience in developing complex systems for the industry. This search for expert knowledge and experience presents a challenge for systems integrators.

Repetitive, high-volume applications that often require some kind of judgement by insurers lend themselves to artificial intelligence and expert systems and thus are being developed for a variety of insurance applications, including underwriting/risk management, claim management, adjusting, investment management, personal financial planning, policy customisation by agents, and medical review analysis.

Network and electronic information services for electronic mail and EDI services are used by all subsectors of the insurance industry. This market sector will grow rapidly over the forecast period. EDI, in particular, offers considerable expense and time reduction in moving data between agencies and insurers, and, ultimately to consumers. The RINET and LIMNET networks use the IBM Information Network; the BROKERNET service uses the INS/GEIS network; France has adopted the Belgian ASSURNET network service using the Transpac network; and Siemens and a consortium of German insurance companies have set up the MEGANET network. All provide connectivity to thousands of organisations and agents. In addition, there are also other private networks available for EDI services to the insurance industry. There are opportunities here for vendors to develop network applications for the growing network infrastructure in Europe.

Personal computers are being used for many applications in the insurance industry; spending on microcomputers is expected to increase by 50% in 1990. In the more mature markets of Northern Europe, an example of an application would be agents' use of PC software as a marketing tool, enabling them to make a more effective demonstration and to present more alternatives to the customer during a sales call. In the less developed markets of Southern Europe, turnkey systems, a sector dominated by Nixdorf, will prove the ideal solution for the smaller insurance operations.

Most IS departments and some end users within the insurance industry are developing their own applications by using external resources as a supplement to internal resources. There is consequently an excellent opportunity for application development productivity tools. Another opportunity is for vendors to provide systems for new areas in insurance —e.g., long-term disability insurance—as well as for new distribution channels, including those in foreign markets. These areas of opportunity for software and services vendors and insurance companies are shown in Exhibit II-7.

EXHIBIT II-7

Areas of Opportunity

- Systems and network integration
- AI/Expert systems
- Custom software
- Application development tools
- Network applications

E**Insurance Drivers:
Software and
Services Issues**

Driving forces within the insurance industry translate into major issues for software and services vendors that sell to the industry. Certainly any new systems must provide for the legislative changes occasioned by the European Commission's financial services directives. These changes directly affect the industry and those selling to the industry.

One of the key issues for software and services vendors is the insurance companies' need for cost containment. With insurance companies in Western Europe expanding by mergers and acquisitions, there is a need to boost productivity and improve revenues; vendors should consequently be looking to offer additional services as a means to maintain a competitive edge and improve productivity. One of the key areas is risk management: financial analysis programs, decision support tools and electronic information services providing actuarial and investment information are some of the products and services that go some way towards reducing insurers' risk exposure.

With the spate of mergers and acquisitions occurring in the Western European insurance industry, software and services vendors are presented with an opportunity to develop ways of connecting systems using different equipment, software and services. However, these products need to be made available so that information can be shared within the resulting organisation in a short time frame: this prompt sharing is unquestionably the challenge. Another current difficulty vendors face is the length of the development cycle. The length needs to be reduced to satisfy the demands of insurance. On the other hand, this perpetual difficulty offers opportunities for new players.

IS managers within insurance companies are faced with a series of challenges as a result of the frenetic activity taking place in the insurance industry: IS managers' central objective—providing services to end-user

groups—is hindered by the need to improve revenues and cut costs. With information handling being such a key activity in insurance, IS managers are looking for flexible systems that can be expanded and modified for long-term usability.

This need for flexible, easily expandable and modifiable systems is particularly noteworthy given the huge backlog of applications at insurance companies: users constantly need new applications, enhancements to existing ones and maintenance of existing operations. Furthermore, with consolidation occurring as a result of acquisitions, IS managers are finding that they are being called upon to integrate systems as well as establish decentralised IS functions. In addition, there is a chronic shortage of skilled staff throughout Western Europe. As a result, INPUT is anticipating high growth in the professional services sector as more and more companies turn to third parties to help carry out these sea changes.

Finally, for end-user departments within insurance companies, the issues are clear: access to information enables end users to offer more services and a better quality of service to customers. In addition, end users want systems that are compatible with customers' and suppliers' systems, as well as systems within the organisation. With end users becoming more involved in the application development process, INPUT anticipates that the network and software products sectors of the insurance market will experience strong growth. These issues and opportunities are listed in Exhibit II-8.

EXHIBIT II-8

Issues and Opportunities for Software and Services Vendors

Issues

- Consolidation within industry
- Cost reduction



Opportunities

- Network integration
- EIS
- Decision support tools
- Custom software

F**Country Market Forecasts**

Uncertainty continues to surround market acceptance of technology as well as conceptions of the desirable rate and direction of technological change. However, INPUT forecasts that expenditures on software and services will, in relation to other categories of noninterest expense, increase dramatically over the next five years. The degree of increase may prove a new phenomenon for some European insurance companies.

Exhibit II-9 illustrates that expenditures for software and services by the Western European insurance industry are estimated to reach \$5.0 billion in 1990.

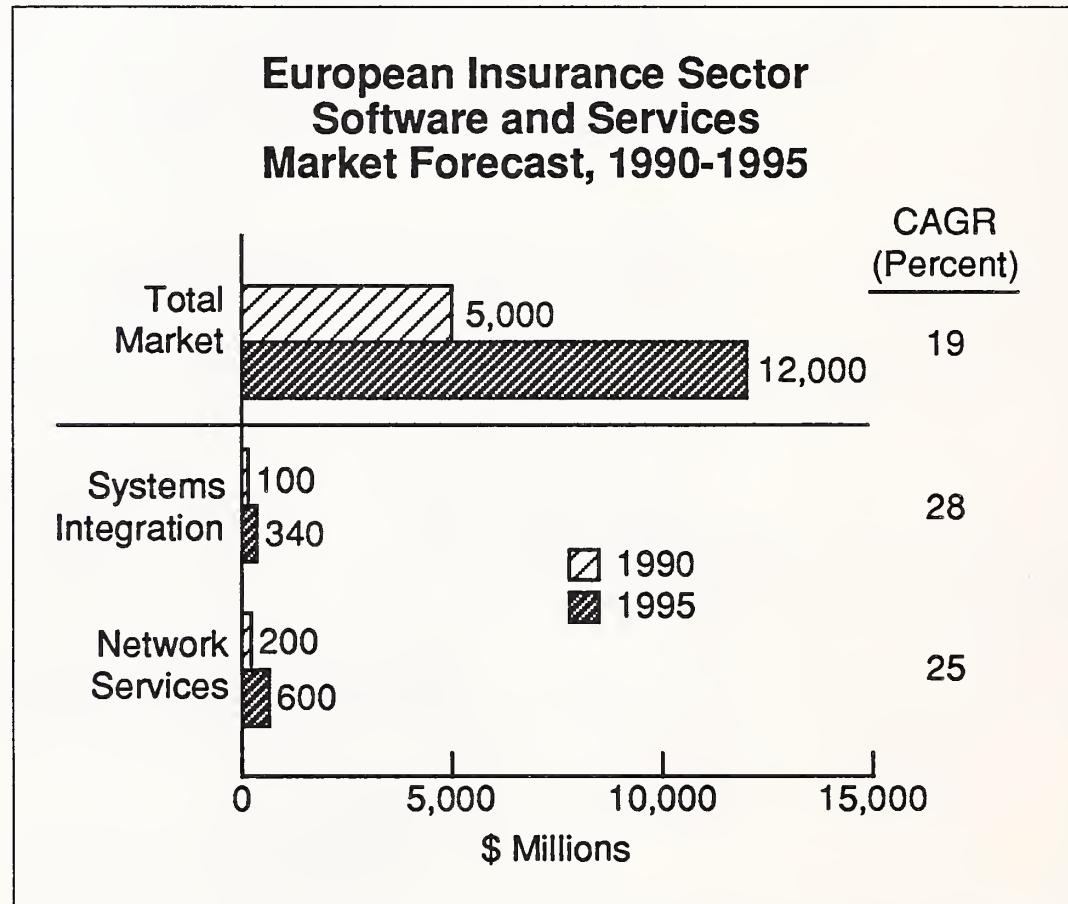
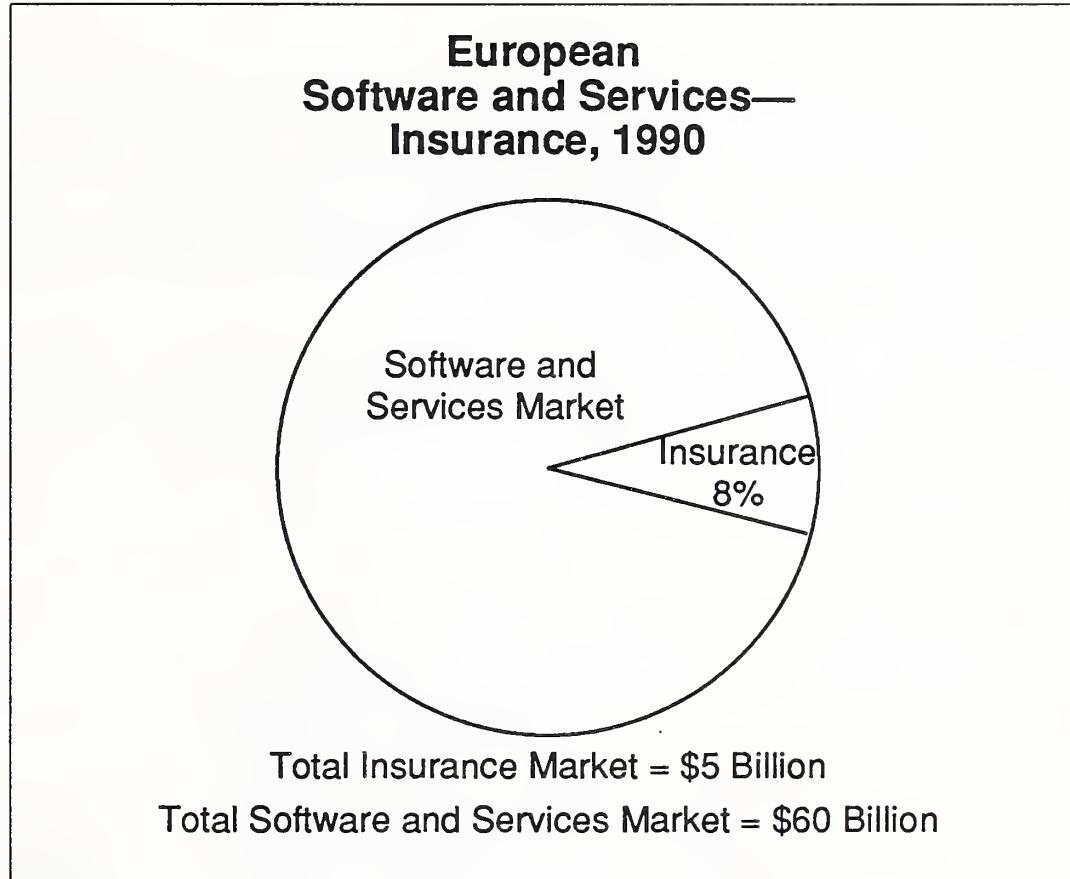
EXHIBIT II-9

Exhibit II-10 shows that insurance represents 8% of the software and services market. Growth will be a compounded annual 19% over the next five years, reaching \$12.0 billion by 1995. These figures are a result of the insurance industry's being an extremely competitive, yet currently fragmented, industry that relies on software and services for support in the areas of new product and service offerings and new channels of distribution, revenue production and cost containment.

During the five-year period 1990-1995, projected growth is highest in the areas of network services (23%) and systems integration (25%). Software products, turnkey systems and professional services will also show growth in excess of the industry average.

EXHIBIT II-10



The life subsector represents the largest of INPUT's three insurance subsectors. The group is also the fastest growing in terms of revenue, premium receipts and software and services spending, especially in network services and software products. Software and services expenditures for the life subsector will be \$2.4 billion in 1990. Expenditures are expected to climb to \$6.3 billion over the next five years. The life insurance industry has recognized the need to invest in software and services. There is considerable policy, claim, actuarial and financial information involved with the operation.

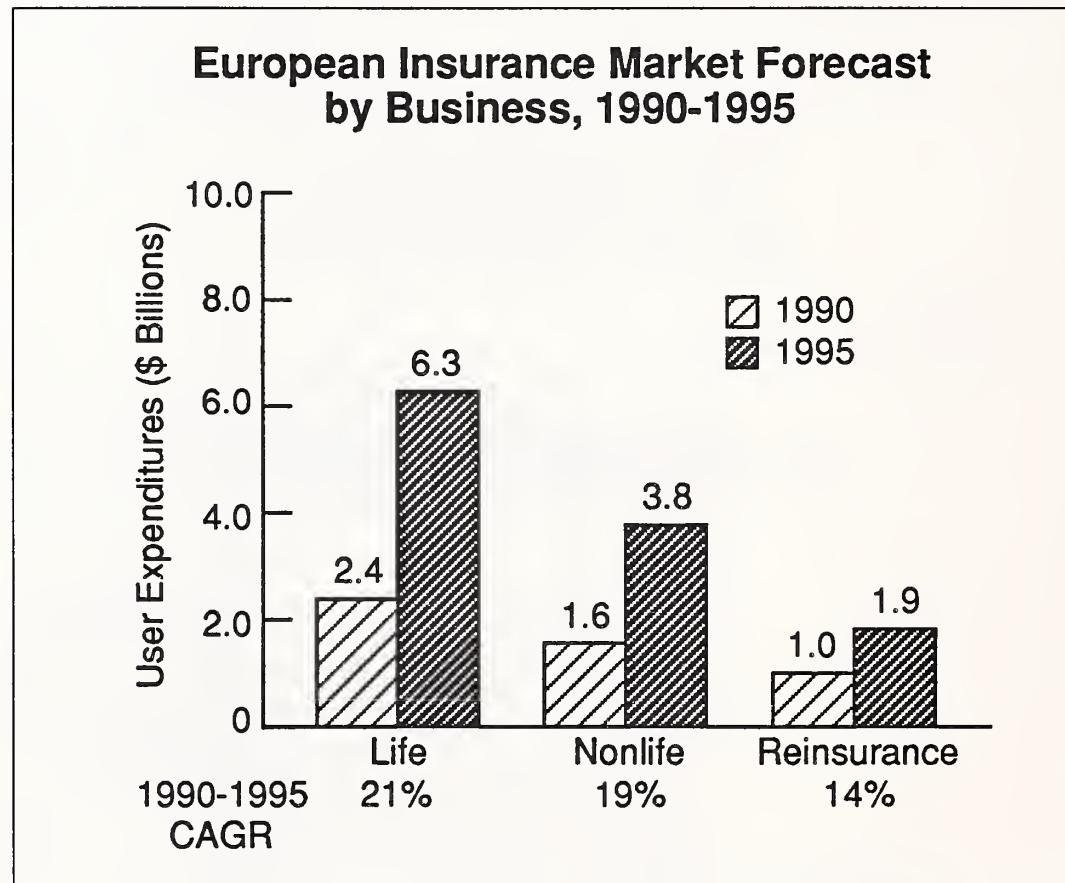
1. Nonlife

Like the life sector, the nonlife, or general, insurance subsector is expected to show strong growth over the next five years, from \$1.6 billion in 1990 to \$3.8 billion in 1995. Spending will occur primarily in the areas of network services, software products and systems integration. The subsector's underwriting loss has improved significantly, resulting in the subsector being in a position to invest in software and services and to expand in-house processing. Companies will purchase application software and contract with systems integrators for systems development and integration. Furthermore, investments in stocks and bonds will make electronic information services of increasing importance in helping insurers to track these investments.

2. Reinsurance

The reinsurance subsector has a high loss ratio. Reinsurance is the high-risk segment of the industry—profits or losses can vary widely every year. As a result, INPUT's market forecast for the reinsurance subsector shows a slightly lower growth figure than for the other two subsectors. Exhibit II-11 provides a detailed market forecast for these three insurance subsectors.

EXHIBIT II-11



G

Key Delivery Modes

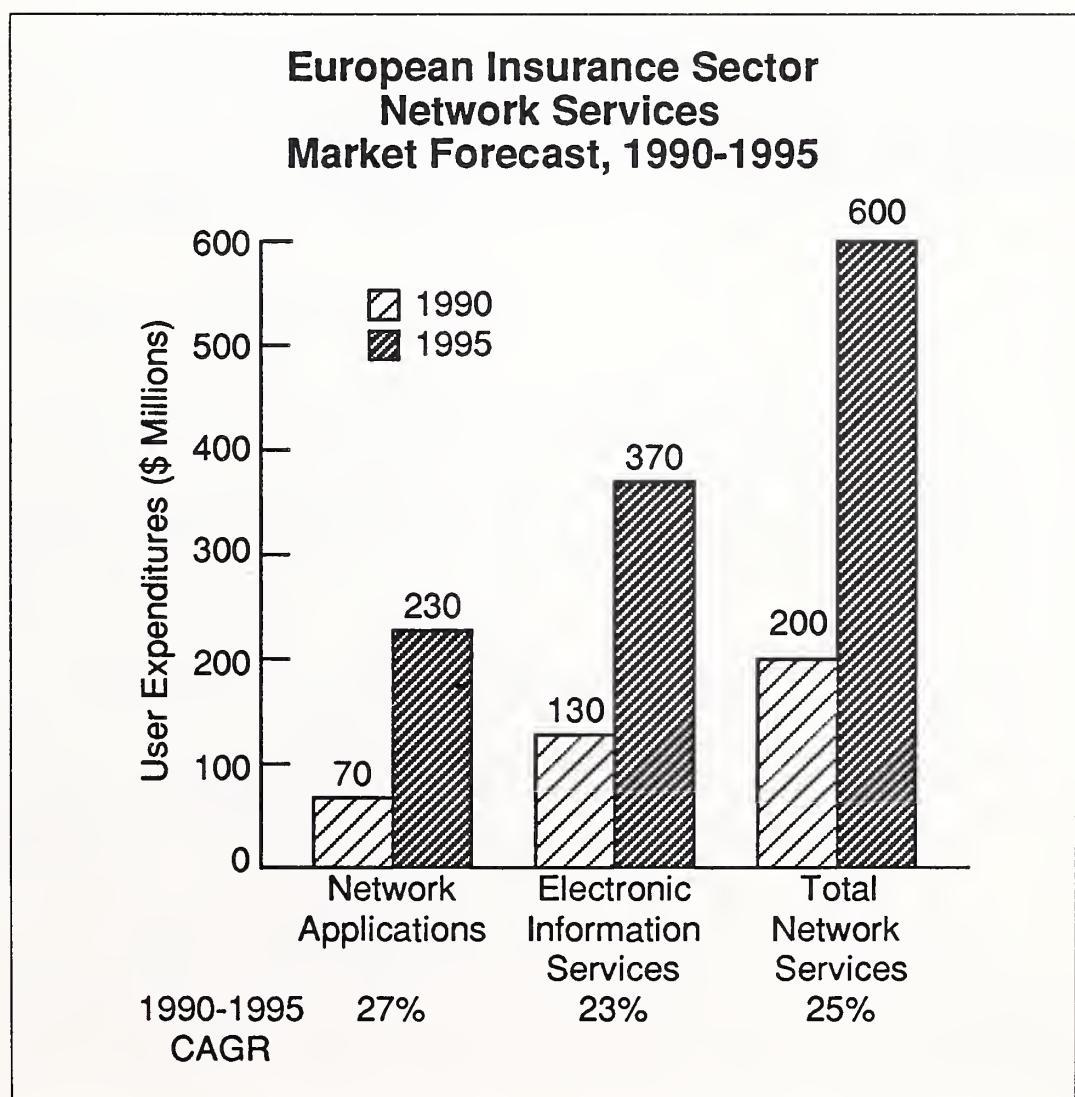
Inurers lag behind the banking and manufacturing industries in systems applications. Insurers have been slow to bring information technology managers to positions of influence. The tendency is for boards or decision-making groups to decide what they are going to do and fail to tell the information services division soon enough. Some of the biggest companies still don't have a client base, but a contract base instead. The older systems designed in the 1960s and developed in the 1970s were built around processing insurance contracts. The focus today is on servicing clients or intermediaries. The need to rewrite software represents a substantial investment.

1. Networks

One of the largest growth areas in the 1990s in the insurance software and services sector will be network services. For example, by the end of 1990, 90% of the market will be connected to LIMNET (London Insurance Market Network). (Currently 20% of the market is connected.) Forty percent of those interviewed by INPUT saw LIMNET as providing opportunities for underwriters to bypass brokers and deal directly with the insured. Dealing directly will dramatically alter the dynamics of the market. Insurance companies are relying more on network services, especially EIS (Electronic Information Services) and insurance industry networks (RINET, BROKERNET and LIMNET in the U.K.; ASSURNET in Belgium and France; and MEGANET in West Germany, for example). These networks provide the capacity for efficient data interchange.

As a result, expenditures in these areas are forecast to increase significantly over the forecast period. Exhibit II-12 outlines the growth expected in network services, including a breakdown between network applications and EIS for the insurance sector.

EXHIBIT II-12



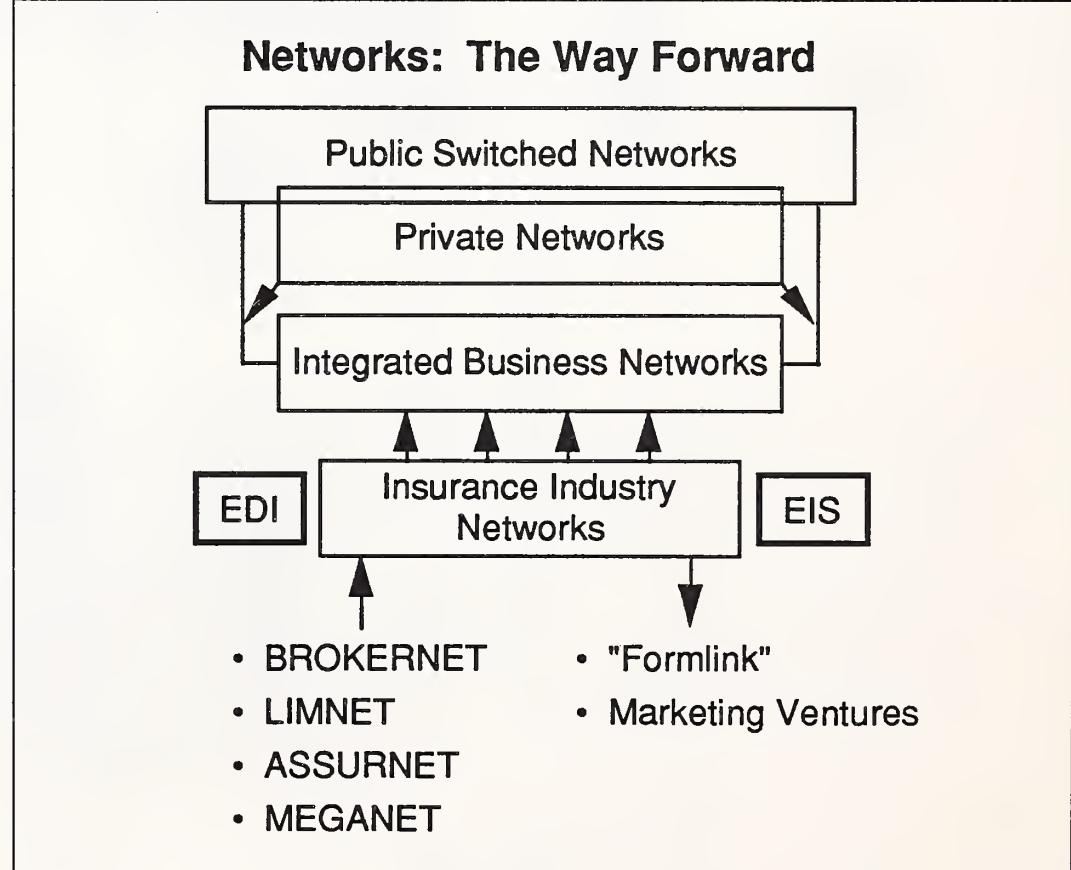
Furthermore, the insurance industry is a natural candidate for electronic data interchange (EDI):

- INS runs the BROKERNET motor insurance system.
- Istel Financial Services and Misys Dataller, a software house specializing in insurance systems, have a joint-marketing venture to provide EDI between intermediaries and insurance companies. Joint marketing applies also to the motor insurance area.
- IBM provides the network for a development in insurance EDI that could lead to a revolution in the way intermediaries deal with insurance companies.

An important development for the industry is that a consortium of leading U.K. insurance companies are funding the development of a system by Fame Computers called "Formlink," which is effectively a conventional EDI system. Although insurers have been unwilling to use standard message formats, Formlink provides electronic replicas of paper documentation.

Establishing a common electronic network is crucial for the insurance business, as shown in Exhibit II-13.

EXHIBIT II-13



Costs can be cut and individual insurers can compete through the quality of service they are prepared to offer their intermediaries once a level playing field has been established. These conclusions are confirmed by the insurers themselves, who want standard forms for attaining quotations and for the processing of policies.

Significantly, ten leading companies in the Lloyds of London insurance market have agreed to begin trading insurance risks electronically in 1990 and to do away with some of the face-to-face contact that dominates underwriting transactions. In continental Europe, a consortium of European manufacturers and users led by NV Philips has begun a four-year project to develop an electronic case-handling system for the insurance industry. The system uses broadband communications to speed up by 50 percent the process of handling insurance policies in Europe. The project team aims to develop a system to let insurance companies move voice, data, text or video information from a company to the public switched network at up to 100 megabits per second. From there, the information would be transferred at 2 mbps across the public network to other sites. The project is also designed to reduce paper use—the European insurance industry uses up to 40 million trees a year for paper. The project team plans to develop a system based on Philips' fibre optical storage technology and gateways to the public network. The systems will in turn link to a public 2-mbps broadband network that is planned for trial operation in 1991. Seventeen members of CEPT agreed last month to run the European Broadband 2-mbps Interconnection Trial (called EBIT) in 1991. Other pilot applications are expected to emerge to take advantage of EBIT.

2. Software Products

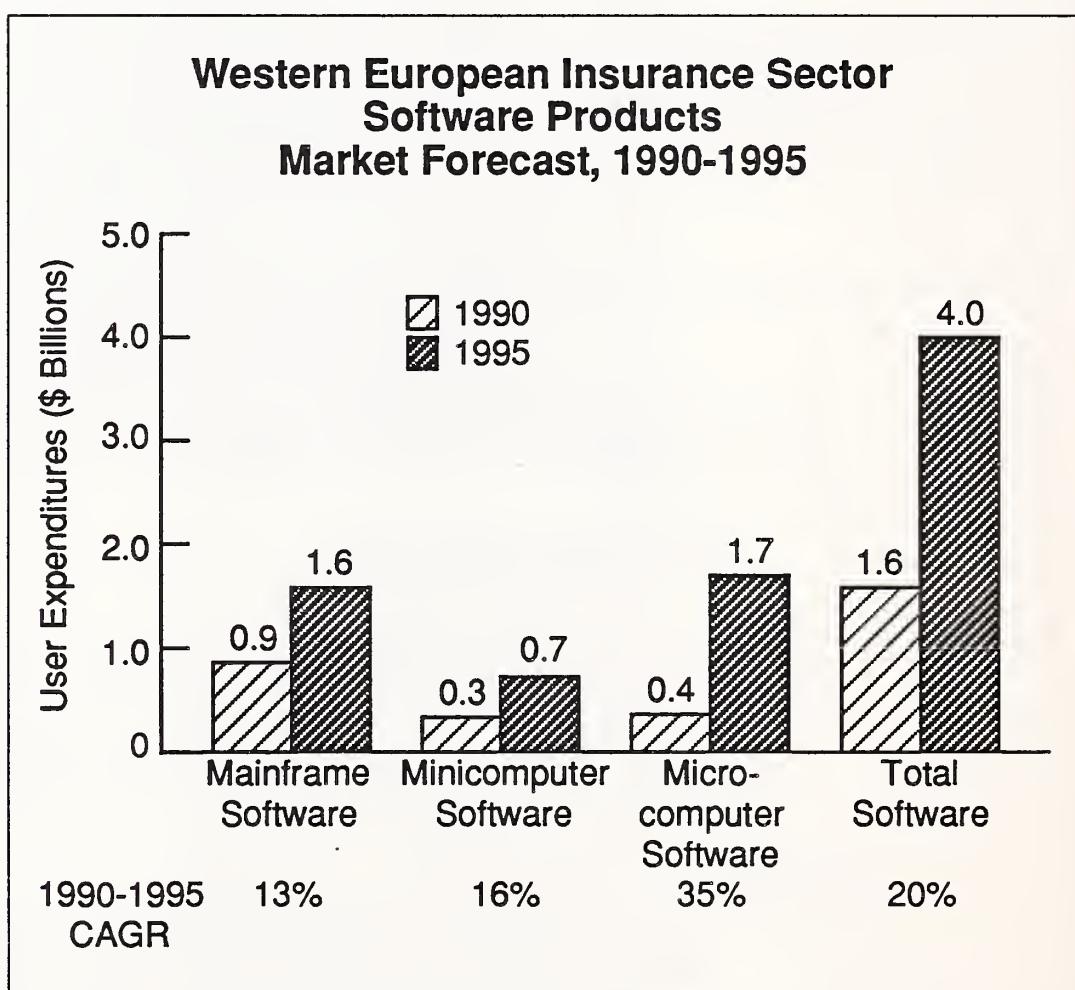
On the software products side, the involvement of major insurance companies in software houses specialising in insurance broking and intermediary systems has had a profound effect. Only Misys and MCS are truly independent and even Misys is expanding into noninsurance software markets and may well sell its insurance broking systems division.

The combination of networks and software can provide a massive competitive edge. For example, Policy Master's idea of giving £750,000 in technology grants is the first stage in implementing the products and services being developed with Policy Master's Validated Business System Initiative, which has the backing of most of the leading insurance companies. The network provides EDI between the broker and the insurer, and electronic mail and interactive insurer mainframe services. The network is geared to enable Policy Master to establish the largest number of networked insurance brokers by 1990 and to deliver products that Policy Master has developed with a number of insurers. Furthermore, IBM has appointed Policy Master the authorised dealer for the IBM 6150

and the AIX. Insurance companies will increasingly invest in systems and communications technology in support of their increasingly pan-European business operations.

Expenditures for software by the insurance industry are expected to grow at approximately a 20% CAGR over the next five years, as shown in Exhibit II-14. Many insurance companies are handling their own information processing requirements in-house through IS departments, and as a result IS departments purchase applications when the available products meet their requirements. The types of industry-specific application software products available to the insurance industry are extensive. Products are available that handle most types of policies, claims administration, billing, client profiling, actuarial and investment analysis, decision support and management reporting.

EXHIBIT II-14



Within the insurance industry, expenditures for microcomputer applications will grow faster than expenditures for mainframe and minicomputer applications or any other type of information service. The information-intensiveness of insurance has resulted in a very high penetration by microcomputers. For example, laptop computers are used by agents to provide claim and policy information, whilst databases containing actuarial information can be downloaded to these microcomputers so that a policy can be generated on-the-spot during a sales call.

H**Strategic Opportunities**

In conclusion, INPUT believes technology will be directly linked to capturing further market share—the focus will be on sales and marketing information systems and customer monitoring to exploit cross-selling opportunities to the full. An effective presence in the corporate market will be impossible without much greater use of technology; in the life and nonlife sectors, the role of transaction processing systems, for example, will be a key determinant of the ability to participate.

In the relatively undeveloped markets of Southern Europe, turnkey systems and professional services will show high growth over the forecast period as microcomputer systems for agents and brokers are made available and custom software development is required to supplement internal IS resources. Information technology, imaginatively used, can be a powerful ally in insurance companies' efforts to cope with the volatility that has shaken the industry over the past decade.

Greater expenditure will be devoted to all aspects of technological implementation. There will be increased investment in high-calibre systems personnel, as well as demand for professional services. Insurance companies will continue to devote much of their attention to internal use of technology and will promote productivity improvements and cost containment, if not reduction.

Insurance brokers will be increasing targets for improved automation, whether through more-sophisticated distributed processing systems or through automation of a wide range of clerical functions, possibly including fully automated branches and developments in new fields of application (such as expert systems and artificial intelligence). Exhibit II-15 shows details of key vendor opportunities.

EXHIBIT II-15**Key Vendor Opportunities**

- Professional services
- Systems integration
- Network services
- AI/Expert systems
- Productivity tools

End-user requirements will also change. If competitors are offering new products and services, end-user departments will require systems to provide the same types of products and services. Enhancements to existing systems and development of new systems will inevitably have an

adverse effect on the IS budget. Furthermore, there is a chronic backlog of planned application development projects within insurance.

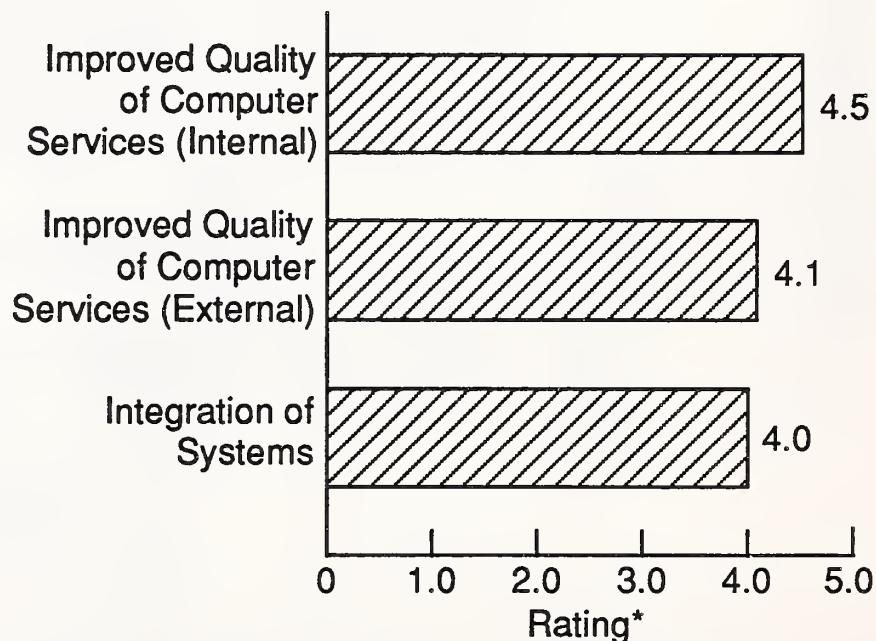
There are two key objectives for IS managers (sceptics might suggest that these objectives are mutually exclusive):

- To provide end users with the services they require in time and at a reasonable cost
- To reduce the backlog of application development projects and maintain ongoing operations

To meet user requirements, new systems have to be developed and/or old systems have to be enhanced or expanded. Projects identified by respondents for 1990 include developing systems that speed the delivery of actuarial, policy and financial information to end users as well as to customers. IS departments' priorities are illustrated graphically in Exhibit II-16. Integrating systems is also a key priority after the wave of acquisitions across Western Europe. Integration leads to a more efficient use of information.

EXHIBIT II-16

Insurance Companies' Priorities in Software and Services



New technologies that are slated to be implemented in 1990 are shown in Exhibit II-17. Decentralisation of some IS functions is occurring in some organisations, whilst the new technologies and applications planned by insurance companies, coupled with the external pressures to become more competitive, quickly translate into a considerable opportunity for software and services vendors with expertise in systems and network integration, software products and turnkey systems. Database management and decision support systems are already being developed by the leading insurance companies, whilst EDI and image processing are likely to represent a large proportion of IS activity into the 1990s.

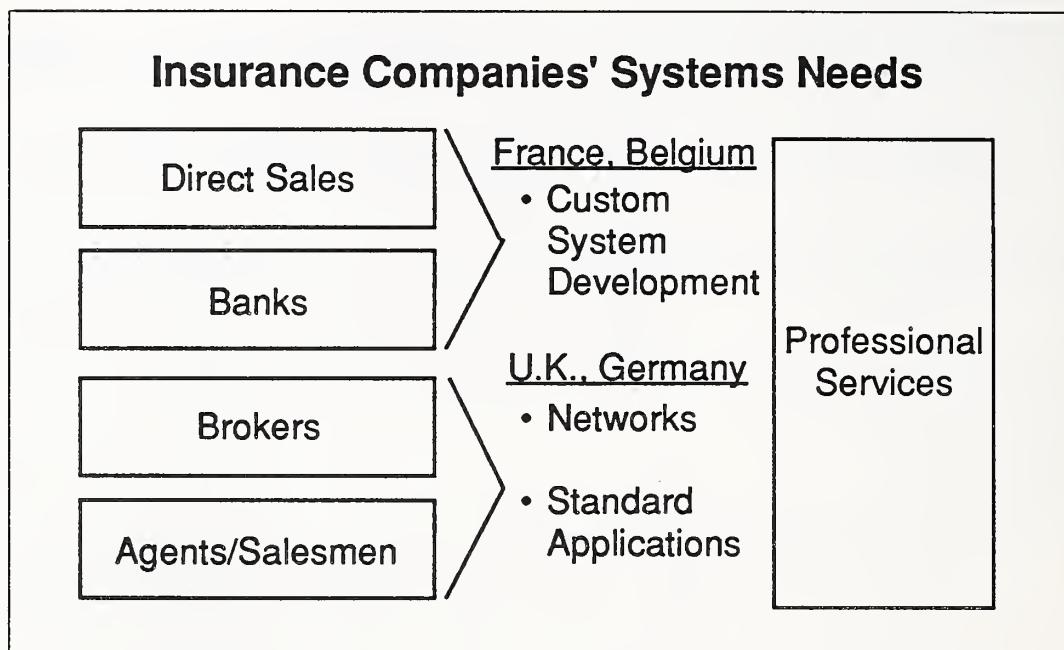
EXHIBIT II-17

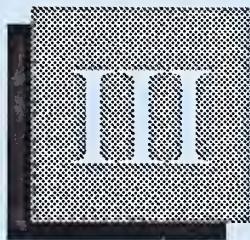
New Technology Planned

- Database management systems
- Decision support systems
- EDI interface
- Image processing

The fragmented nature of the insurance industry means that the software and services market has distinct national characteristics, with France and Belgium concentrating on major in-house developments and the U.K. and Germany looking more towards networks, packaged solutions and turnkey solutions. The strategic positioning occurring in Europe has ensured that insurance companies will need to invest in systems, networks and software as a result of competitive pressures, forcing them to sacrifice short-term earnings in favour of strategic investment decisions in their pursuit of diversification. This, for software and services vendors, is the key challenge. The challenge of systems needs is summarised in Exhibit II-18.

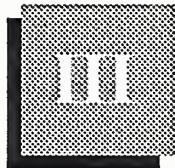
EXHIBIT II-18





The Markets

—



The Markets

A

European Overview

Insurance in Western Europe is undergoing a period of profound change. However, compared to companies in other sectors such as banking, insurance companies have been slow to respond to changes, sheltered as insurers are in some markets by regulators' convictions that insurance is more important to consumers than are other financial services and in others by the near-impenetrability of insurance products and financial statements.

This change has been caused by a complex interaction of forces—including deregulation, competition, rapid technological developments and the gradual penetration of the banks into traditional insurance markets. The result is consolidation within the industry and a spate of cross-border alliances; insurance companies are moving belatedly towards becoming international all-purpose operations similar to what banks and securities houses have become. Exhibit III-1 summarises driving forces and the results.

EXHIBIT III-1

European Insurance Industry

Three Essential Driving Forces

- Deregulation
- Competition
- Technology

Resulting In

- Convergence
- Consolidation
- Cross-border alliances

The size and complexity of the insurance market in Western Europe necessitates a focussed approach. In this report, INPUT concentrates on developments in the insurance industry and the consequent opportunities for computer software and services vendors. The report focusses on these opportunities and the issues and considerable challenges faced by the industry and the requirement to satisfy insurance companies' requirements as they prepare for the formidable dual challenge presented by the single European market and the entry of banks into the insurance sector.

Insurance providers are already operating in an extremely competitive environment within their domestic markets. An additional challenge is the single European market and the gradual entry of banks into the insurance business. Within this business there are other, more pressing concerns: a growing elderly population, the effects on the climate of global warming and the increasing (apparent) negligence of large multi-nationals with regard to security as they try to improve efficiency and maintain competitiveness in an increasingly cut-throat market. Exhibit III-2 shows pressures on the industry.

EXHIBIT III-2

Insurance Under Pressure

- Single European market
- Gradual penetration of banks
- Attitudes to security
- Growing elderly population
- ADS
- Global warming

External

Internal

European insurers have sought alliances with foreign banks rather than with other insurers as a strategic option. Such links have become so common that the French now talk of *bancassurance* and the Germans refer to *Allfinanz*. For example, Allianz has set up a joint venture with Spain's Banco Popular to sell life policies through the bank's 1,600 branches. Commercial Union has signed Credito Italiano to sell life and nonlife insurance through Commercial Union's network of over five hundred branches.

Bancassurance is becoming increasingly common in domestic markets as well. France has seen a spate of government-inspired marriages between state-owned banks and insurers. These marriages are designed to

strengthen the combined group's capital bases, such as UAP's link with BNP. In Germany, Allianz has tied up with Dresdner Bank. The bank offers Allianz's policies through its branches while the insurance company's 20,000-plus sales force promotes Dresdner's products. The powerful Deutsche Bank owns 10% of Allianz as well as 10% of the Munich Re.

In the U.K., insurers have proceeded with more caution. Until Halifax's recent tie-up with Standard Life, only Abbey Life had thrown in its lot with a bank—Lloyds in December 1988. Yet there is a natural synergy between banks and insurance companies: the insurance companies will bring in the requirement for new loans whilst the banks are ideally positioned to sell life and nonlife policies through their branch networks.

Insurers can benefit only by using banks' distribution networks. As the single European insurance market unfolds, traditional sales forces could become obsolete. There can be little doubt that the prospect of obsolescence has reinforced insurers' keenness to use the banks' high street branches to sell policies. There is concern within the insurance industry that banks will take business away from insurers. Some of Europe's biggest banks are already targeting the long-term savers, the insurers' primary market.

In terms of revenues, banks have been most successful in France. In 1988, the banks' share of the FF156 billion life-assurance market was 30%, an increase of 25% in five years. Predica, the life assurance subsidiary of Credit Agricole, achieved over FF17 billion in premiums, second only to state-owned insurer UAP. In Germany, Deutsche Bank launched its own life insurance company in August 1989 in order to gather some of the roughly one-third of German savings that now goes into tax-advantaged life insurance.

As a result, insurance companies looking to become pan-European operations are being forced to fundamentally rethink software and systems to provide the flexibility to cope with rapidly growing information needs. The major opportunities for software and services vendors in the 1990s will stem from the moves by the insurance industry to become fully electronic in the 1990s, precipitated by the banking industry's move to offer insurance services.

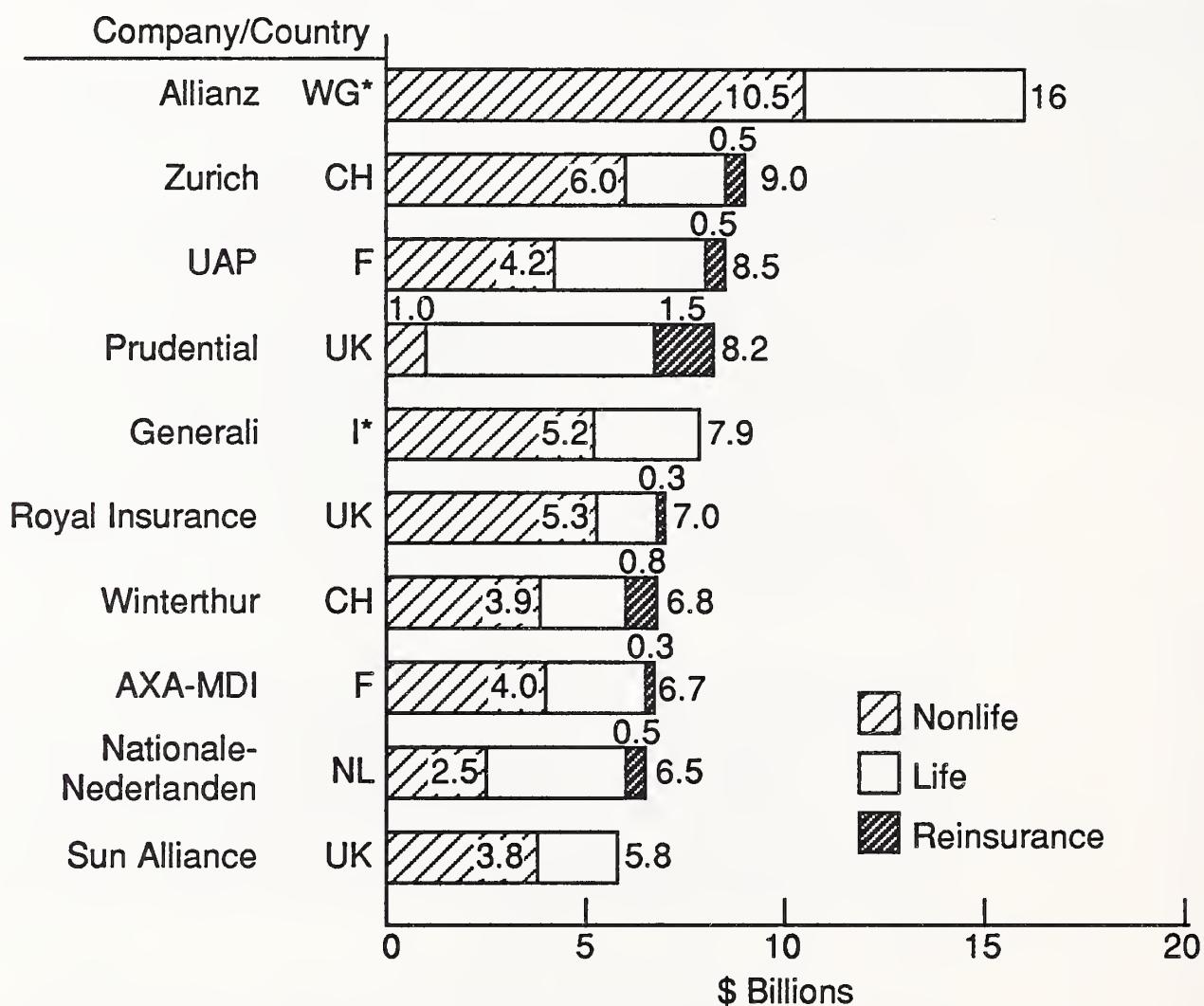
B

Insurance Industry in Western Europe

Insurance comprises three distinct businesses, each with its own dynamic, its own strategic imperatives. However, in Europe the businesses are usually grouped under one corporate roof. Exhibit III-3 shows Western Europe's biggest insurers, taking into account the vagaries of different countries' accounting methods. Exhibit III-4 separates the value of insurance premiums by geographic region.

EXHIBIT III-3

Ten Largest Western European Insurance Companies by Gross Premium Income



Source: Company Reports

EXHIBIT III-4

Value of Insurance Premiums by Geographic Region, 1988

Country	\$ Billions
1. West Germany	80.5
2. United Kingdom	63.7
3. France	56.9
4. Italy	20.2
5. Holland	16.5
5. Switzerland	16.5
7. Spain	14.5
8. Belgium	6.1
9. Denmark	5.0
10. Ireland	3.2
11. Portugal	1.2
12. Greece	0.7

Source: Office Fédérale des Insurances Privées.

In this report, INPUT has broken the insurance sector into the following three segments:

- *Life*—Increasingly including a form of savings as well as life cover, pensions and health insurance.
- *Nonlife or general*—This type breaks down into “personal lines” or “mass risks”—house or car insurance, for example—that individuals buy, and industrial and commercial “large risks” that companies and professionals insure against, such as catastrophic damage or product and professional liability.
- *Reinsurance*—The insurance that insurers take out to defend themselves against big claims, odd risks, or times when insurers write more business than they have capital to support.

1. Life

Pure life assurance provides protection against a certain event—i.e., death. The odds in life assurance can be easily calculated. Because the liability is long-term, insurers do not need a huge capital base of their own. Premiums for life assurance and related products account for just under half of total direct (excluding reinsurance) business in Western Europe. It is the fastest growing and fastest changing sector and usually the most profitable.

Europeans are underinsured compared with the Americans or the Japanese—European life premiums are \$390 per head, as opposed to the others' \$725 and \$1,560. Reasons for Europeans' underinsurance are: Life expectancy has increased by 50% this century. Old age brings more-complicated ailments; medicine provides more-expensive cures. Europeans are now more worried about providing for their retirement than for death.

People also buy life insurance that pays before they die—"with profits" policies that entitle them to a share in the profits that the insurance company makes by investing their premiums, or linked policies tied to the performance of a unit trust or another measure.

The Prudential in the U.K. has calculated that the savings element accounted for more than 80% of premiums in 1989 and life covered less than 20%. However, with financial liberalisation, the increased competition has resulted in insurers' improving their offers to policy-holders and salespeople.

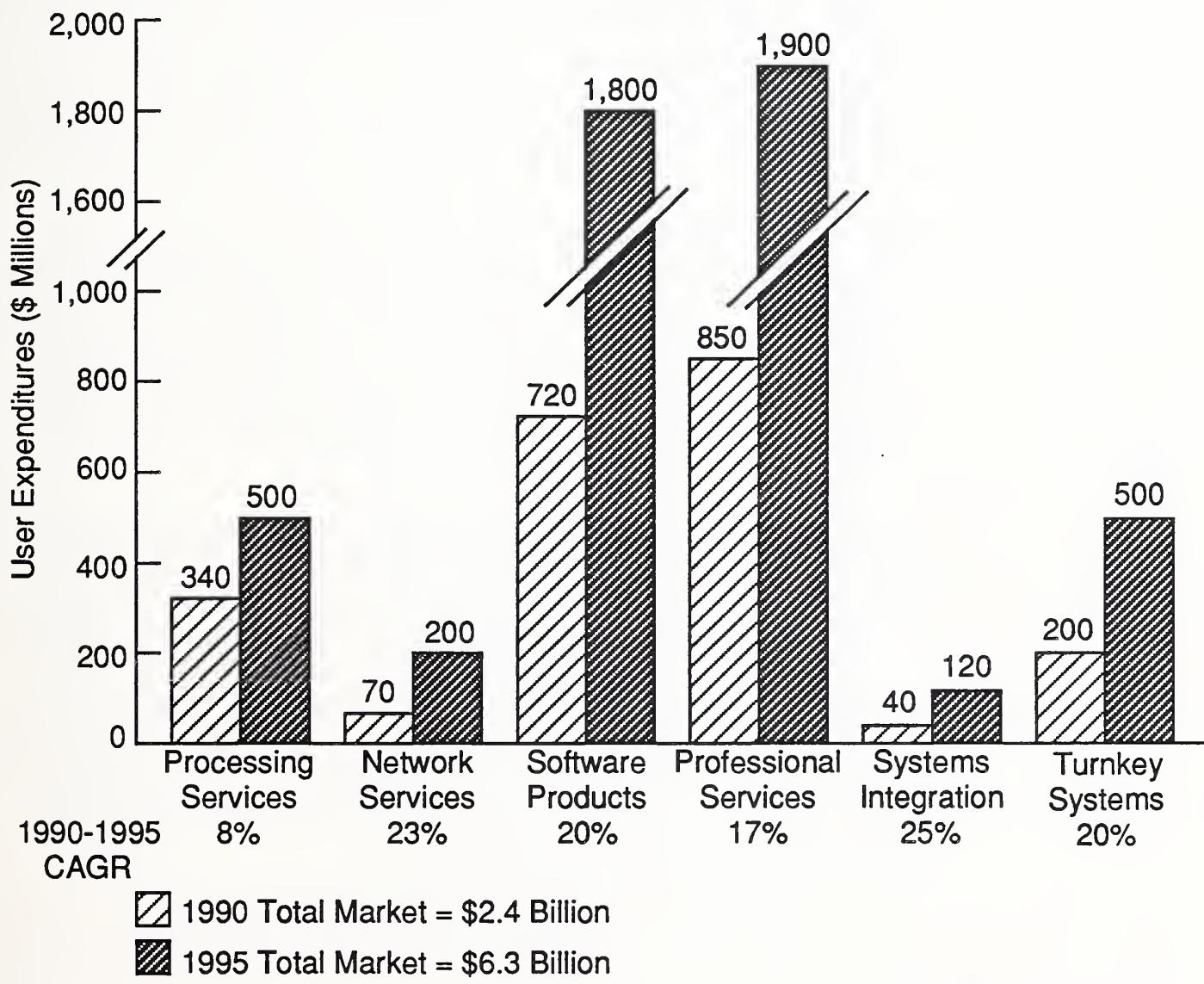
The life subsector represents the largest of INPUT's three insurance subsectors. The group is also the fastest growing in terms of revenue, premium receipts and software and services spending—especially for network services and application software.

Software and services expenditures for the life subsector were \$1.8 billion in 1989. Expenditures are expected to climb to \$4.8 billion over the next five years. The life insurance industry has recognised the need to invest in software and services. There is a considerable amount of policy, claim, actuarial and financial information involved.

Exhibit III-5 provides a detailed market forecast for the life insurance subsector.

EXHIBIT III-5

**Western European Insurance Sector (Life)
Software and Services
Market Forecast, 1990-1995**



2. Nonlife

General insurance gives protection against an uncertain event. As a result, general insurers require more capital as they have to write more business to spread their less-quantifiable risks; furthermore, insurers have to pay more quickly. Much large risk is insured and reinsured internationally, especially through independent brokers, many of whom are in London. Price is the key.

The demand for nonlife insurance roughly follows economic growth, demography and income. However, premium volume does not always reflect demand. Rates are controlled in some countries (in mandatory

motor insurance—for instance, in France, Spain and Germany). Premium growth is also influenced by noneconomic trends, such as the rising liability awards granted by European courts. Nonlife rates are strongly influenced by cyclical swings in capacity and competition.

Although comparing statistics in the insurance market is misleading (French tax accounting means that companies tend to underestimate underwriting profits; in Switzerland, taxes are included in operating costs; in Germany, there is no break-out of capital gains and losses), European integration will undoubtedly bring an end to the subsidy of large risks by mass risks. For example, individuals pay heavily to insure the contents of their houses, whereas companies pay little to insure against fire.

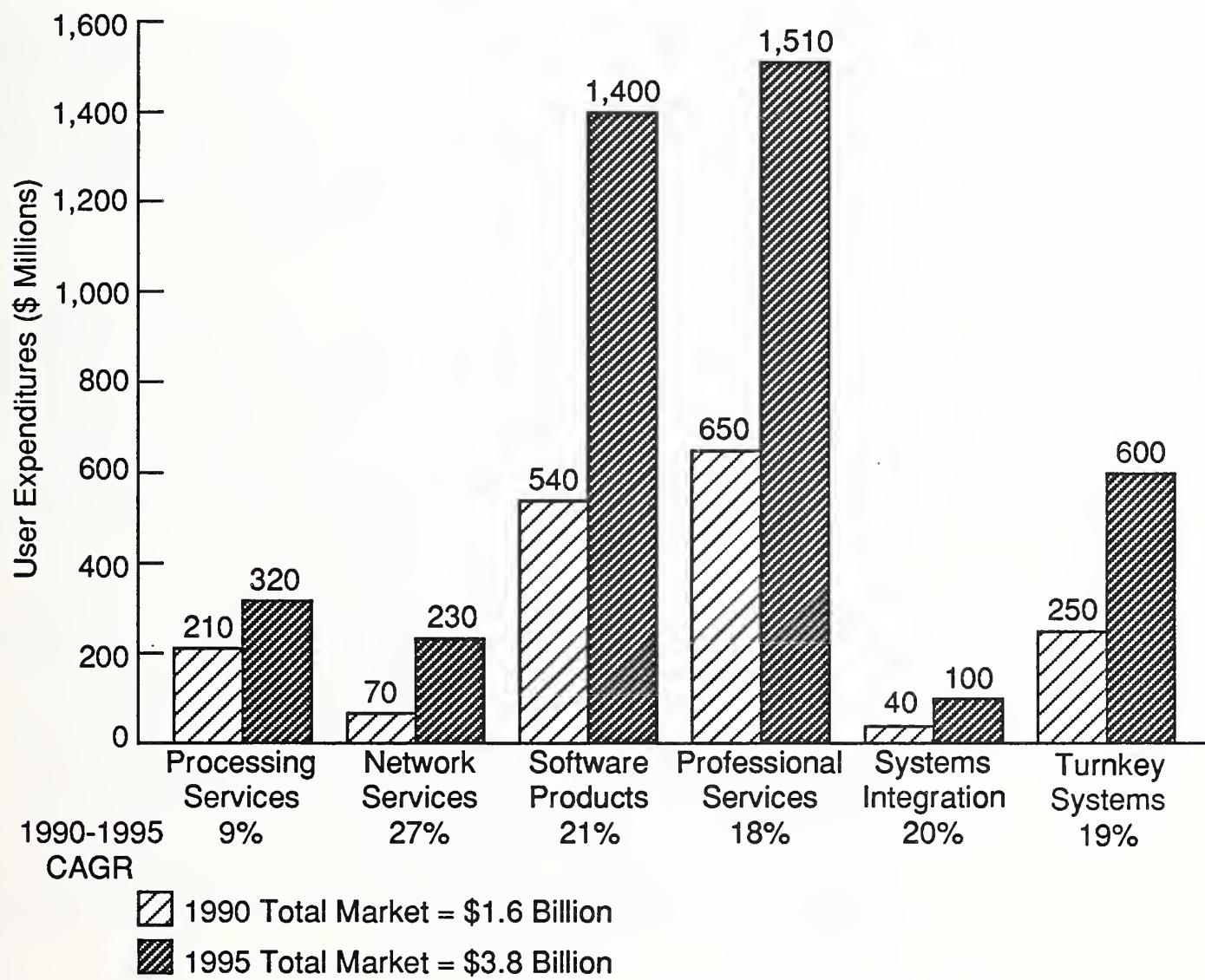
More competition and transparency should lead to a more unbundled pricing of specific products. Underwriting results in nonlife insurance in many classes and countries have deteriorated, whereas in large risks, prices have generally been soft since 1986. The past disaster-packed 12 months—culminating in the January 1990 storms that did \$1 billion worth of damage in Northern Europe—may eventually raise rates on property insurance, for example. The \$1 billion worth of claims from aircraft crashes in 1989 will impact aviation rates.

Like the life sector, the nonlife, or general, insurance subsector is expected to show strong growth over the next five years, from \$1.2 billion in 1989 to \$2.8 billion in 1994. Spending will occur primarily in the areas of network services, application software and systems integration. The subsector's underwriting loss has improved significantly, resulting in the subsector's being in a position to invest in software and services and to expand in-house processing. Companies will purchase application software and contract with systems integrators for systems development and integration. Furthermore, with the investments made in stocks and bonds, electronic information services will be of increasing importance to aid insurers in tracking these investments.

Market forecasts for the nonlife subsector are provided in Exhibit III-6.

EXHIBIT III-6

**Western European Insurance Sector (Nonlife)
Software and Services
Market Forecast, 1990-1995**



3. Reinsurance

Reinsurance is the most international and least regulated of the three kinds of insurance. A little less than one-tenth of direct insurance worldwide is reinsured. About 80% of reinsurance premiums come from nonlife risks, although there is country differentiation: in the U.K., life assurance accounts for about 40% of total reinsurance, and in Italy new life companies are required to reinsure 30% of their premiums initially. Europeans reinsure a higher proportion of their risks than do the Americans or Japanese; the world's two largest reinsurers are European.

Reinsurance is especially prone to swings in capacity since all anyone needs to offer it is capital and an underwriter. The flood of innocents into the market in the early 1980s has halted and reinsurers do not anticipate their return. U.S. direct insurers say they are owed some \$20 billion in nonrecoverable reinsurance claims and are consequently choosing their reinsurers with more caution.

Like their European counterparts, U.S. direct insurers are retaining more risk on their own books and this change presents reinsurers with a challenge. Primary insurers are now healthier financially than they were five years ago. Mergers, too, are creating bigger direct insurance companies with stronger balance sheets and a broader geographic spread of risk. European integration can only reinforce that trend. Reinsurers are being forced to look elsewhere to make up the gap in income.

Both Munich Re and Swiss Re are offering more new services to clients, including insurance-related computer software. Swiss Re also wants to balance its more volatile reinsurance business by expanding direct underwriting of personal lines, which is a more stable business. Direct insurance contributed almost one-third of reported group profits in 1988. Munich Re also has large stakes in direct insurers, including Germany's largest general insurer (Allianz), its largest life assurer (Allianz Leben) and a large private health insurance company.

The terms on which much reinsurance is ceded is also changing, with far-reaching consequences. There are two basic approaches: a reinsurer can agree to take a proportion (quota-share) of a block or stream of business from the direct insurer. In this case the reinsurer pays a percentage of claims and accepts the corresponding percentage of whatever premiums the direct insurer charges, net of a contribution to the direct insurer's expenses. Conversely, the reinsurer can agree to pay claims above a certain level (and often up to another level) to give excess-of-loss cover in exchange for a negotiated premium. In some markets and classes, there seems to be a distinct trend away from quota-share towards excess-of-loss.

If the trend towards excess-of-loss proves significant and durable, it will not only improve reinsurers' profits, but also give them greater control over prices in the direct market. With quota-share deals, the reinsurers accept the primary insurer's judgement; with excess-of-loss deals, reinsurers set their own premium rate. In theory, reinsurers exercise significant influence in that primary insurers are unlikely to write business at a price they know they cannot pass on. That influence seems less decisive in practice.

For example, over half the premium income of the world's biggest reinsurer, the Munich Re, comes from its domestic market, Germany. Yet Munich Re has been unable to stem the fall, in real terms, of pre-

mium rates for individual fire insurance in that market; the most it has achieved is to tighten the terms of fire insurance by excluding pollution risk, for example. Whether reinsurers set or take prices depends in the end, however, on how much they and their competitors want the business.

Competition is sharpest in London, the centre of reinsurance and direct international large risks, especially marine and aviation. Over the years, London's share of this business has declined as other economies have grown faster. Some reinsurers, hit financially by the U.S. business they accepted through London in the early 1980s, are writing more of their U.S. business in the U.S., which is closer to the risks. Certain specialities are gravitating elsewhere. Some 70% of the aviation business written in Paris is on non-French risks, for example. The big Anglo-American international brokers like Marsh and McLennan, C.T. Bowring, and Sedgwick are spreading their offices around the world.

London still has the world's biggest and most professional concentration of brokers and underwriters. Insurance, the least-sung part of the U.K.'s financial establishment, contributes the greatest part of earnings overseas, though these fell in 1987 and 1988. Both Lloyds and the London market as a whole are introducing new technology and speedier procedures in a bid to counter the opening and integration of the European insurance markets.

The reinsurance subsector has a high loss ratio. Reinsurance is the high-risk segment of the industry, in which potential profits or losses can vary widely every year. As a result, INPUT's market forecast for the reinsurance subsector shows a slightly lower growth figure than for the other two subsectors.

The reinsurance market forecast is shown in Exhibit III-7.

EXHIBIT III-7

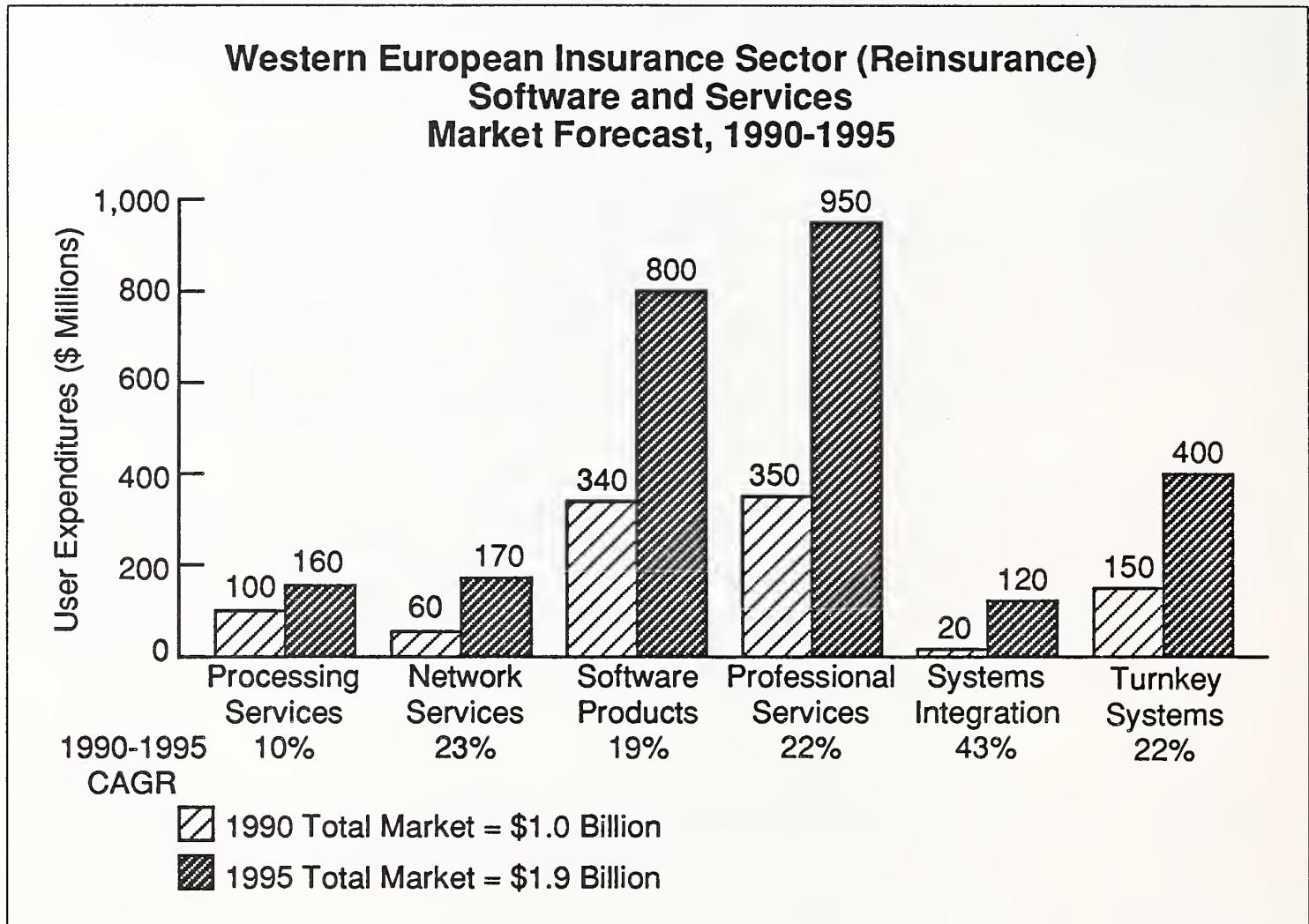
**4. Market Factors**

Exhibit III-8 shows the overall software and services forecast. A key factor is that Europe's biggest insurance companies have vastly different shares of their dissimilar home markets. Shares are illustrated in Exhibit III-9.

Exhibit III-9 partly accounts for the expansionist activity: companies like Generali and Allianz have run out of room in their domestic markets. Other companies, such as the U.K. composites, have found the U.S. too unprofitable and Japan too difficult to penetrate. However, whatever the size or composition of the company, the motivation for expansion is:

- Spread the risks
- Balance the business
- Grow with the fast-growing markets in Southern Europe

EXHIBIT III-8

**Western European Insurance Sector
Software and Services Market Forecast
1990-1995**

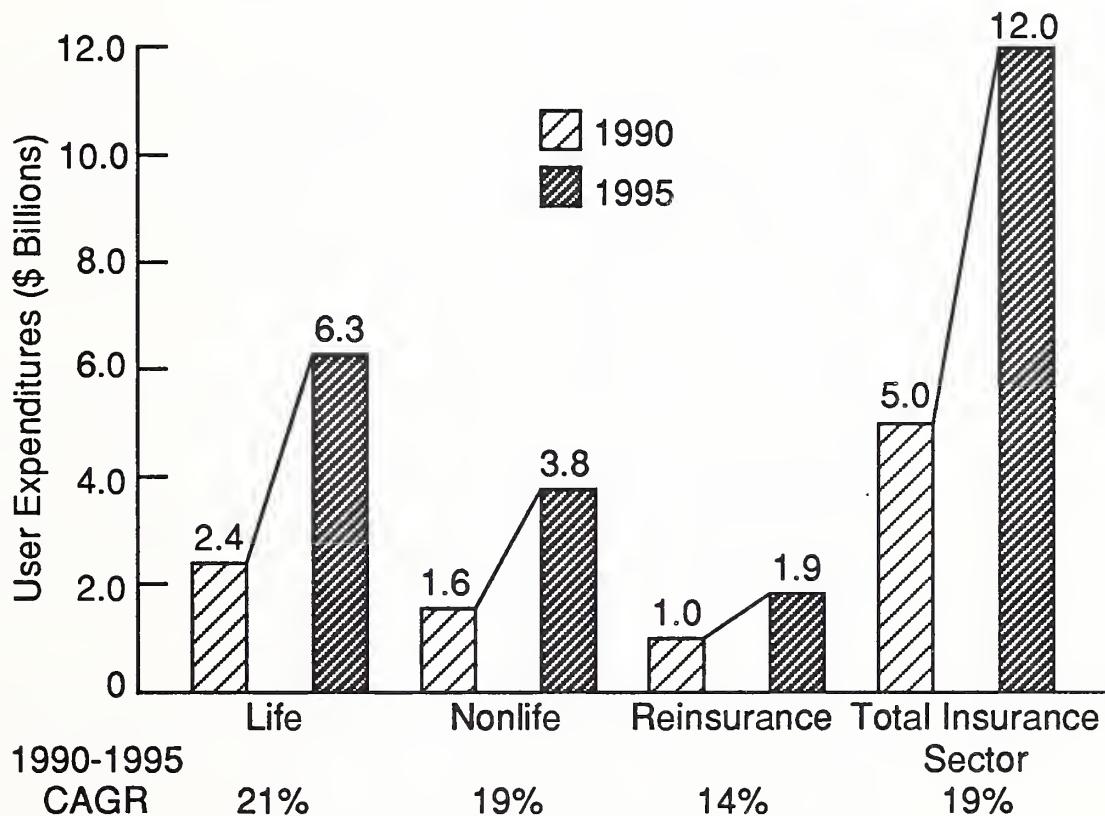


EXHIBIT III-9

**Percentage of Business outside
Domestic Markets**

Company	Share of Domestic Market (Percent)	Business outside Domestic Market (Percent)
Zurich	25	80
Generali	14	70
Prudential	.7	45
Allianz	15	40

Expertise and depth can be developed only with volume. Most insurance companies (Allianz, Generali, Prudential) make more money in their domestic markets where they have a bigger market share than elsewhere (pace UAP, which in fact owns more of the Belgian than the French market). Size, and preferably the position of market leader, means revenue. Additionally, insurance brokers are more likely to recommend products of a large, well-known company than those of an equally good small company.

But the key advantage of size is in investments. Size is an undisputed advantage in buying systems, both for leading-edge investment quality and for compliance. The bigger the investment operation, the more advantageous are the terms on which a company can deal in financial markets. This requirement for size equates with the need to invest in computer and communications systems and software that is flexible, responsive and can grow.

Insurance companies have realised that technology is the key for handling and distribution. Whilst the investment is containable now for companies operating mainly nationally, a market of 325 million people will mean that the cost and scale will be enormous, the problems with systems integration huge. Obviously, one of the problems with pan-European economies of scale is the tendency for consumer habits to change slowly.

However, in the longer term, INPUT anticipates that savings will be made by centralising the back-office work in processing policies and handling claims; by establishing networks enabling fast data interchange; and by using software (Allianz, for example, is using in Spain underwriting software designed for the Dutch market) for managing international corporate accounts.

The French banks and insurance companies in particular are using their investments in technology and information networks: UAP, France's biggest insurance group, is looking to a joint venture with Banque Nationale de Paris (BNP) to bring the companies' activities together. La Société de Banque de L'Orléanais, which belongs to the Indosuez group, recently allied with Mutuelles Régionales d'Assurances, a leading insurance group, to sell financial products together and to investigate other possibilities for joint ventures. La Compagnie de Midi, also a large insurance group, is currently negotiating with Société Générale.

C**A Single Market:
Fewer Players****1. Regulatory Environment**

Freeing the sale of insurance is the last great task of the financial services team at the EC. The process started a few decades ago: reinsurance was formally freed in 1964. A brace of directives in the 1970s gave direct insurers the freedom to set up throughout the Community, subject to local authorisation. Common solvency margins (the ratio of free capital to premiums written) were also laid down; although the ratio was specified, how to arrive at it wasn't, so the harmonising effect was limited.

Although freedom of establishment led to an early wave of cross-border acquisitions, it did not lead to innovation: regulation of insurance in most countries is more detailed than the regulation of other financial services. Although everyone regulates in the name of the consumer, some regulators put more emphasis on consumer choice, others on consumer protection. For example, the U.K. and the Netherlands regulate insurance companies relatively lightly, whilst Germany, Italy, Greece and Portugal regulate heavily.

With regard to a single European market in insurance, the European Commission has approved two directives:

- The first directive provides insurance cover for large risks (defined by the size of the company buying the policy) to be sold as a service. This directive comes into force on July 1st, 1990 (later for Spain, Portugal, Greece and Ireland), coincidentally with another measure freeing capital flows, which will remove restrictions on residents' insuring risks outside their own countries.
- The second directive, more controversial and expected to come into force in 1993, will allow individuals to take the initiative and buy life assurance from companies that are not locally established.

The nonlife directive will affect perhaps 20-30% of the premiums received by European insurers, the largest risks sold internationally. It will open up the large middle market of European companies big enough to trade around Europe but too small to go to Lloyds. Both directives will strengthen the role of the independent broker and increase competition. The opportunity for software and services vendors will be in the provision of networks, software and turnkey systems that enable brokers to compete.

Exhibit III-10 shows that a single European market in insurance will represent a premium income of \$270 billion, which is 60% of the U.S. market and slightly larger than the Japanese market. The European market will include the world's third-largest single-country insurance market, Germany. The 325 million Europeans will have more than 4,000 insurance companies to choose from, compared with the 54 companies

that serve the 122 million Japanese. Such fragmentation is one of the underlying reasons for the outbreak of alliances in the past two years: there are too many middle-sized insurers for a single competitive market.

EXHIBIT III-10

Comparison of Western European Insurance Premiums with U.S. and Japan

Insurance Market	Total Premium Income (1988) (\$ Billions)
U.S.	430
EC	270
Japan	260

Insurance companies are therefore consolidating at home whilst venturing abroad in an attempt to develop distribution channels and market share. Furthermore, this statistic indicates that insurance in Western Europe will undergo significant structural changes over the next five years. There will be greater industry concentration and a decrease in the number of smaller insurance companies through merger or acquisition. This decline across Western Europe in the number of smaller insurance companies has already started, with predictable benefits to the consumer. The small-to-medium-sized companies in the insurance-broking industry are being taken over, with the net result that there are large brokers and very small specialist operations.

As illustrated in Exhibit III-11, the acquisition criteria can be summarised as follows:

EXHIBIT III-11

Acquisition Criteria

- Specific customer base
- Access to local markets
- Local expertise
- Strong marketing base
- Specialist products and services

- A company with a strong marketing and customer base, specialist products and services and local expertise providing access to local markets

Convergence, consolidation and cross-border alliances are occurring all over Western Europe in a manner that mirrors the activities of the banks and investment houses. However, insurers, concerned about the entry of banks into their traditional markets, are expanding rapidly at a time when profits are contracting.

Although the entry of banks presents the prospect of integrated financial services conglomerates that exist in the U.S. (banks are positioning themselves as providers of insurance to their corporate clients), the current overcapacity in insurance markets means that only the most secure companies will survive. For example, the larger banks have an existing branch network and substantial capital resources and areas of overlapping expertise, such as in the mortgage and investment management markets. Such a portfolio makes the insurance sector an obvious target for diversification. Information technology will play a crucial role.

A trend already discernible in Western Europe, and particularly in France and Germany, is the rapprochement between savings banks and insurers, termed by the French "Bankassurance" and by the Germans "Allfinanz," further strengthening the belief that Europe is following the U.S. example of large financial conglomerates. Some recent examples:

- UAP has signed an agreement with BNP, France's biggest bank, to distribute each other's products and eventually to take a 10% cross-shareholding.
- GAN, the third-largest French state-owned insurer, has bought CIC, a medium-sized bank.
- AMEV, The Netherlands' third-largest insurer, has swapped shares with VSB, a savings bank. The Netherlands lifted its ban on joint ownership of banks and insurance companies in January; a series of such cross-shareholdings can be anticipated.
- Commercial Union, the U.K.'s third-biggest composite (i.e., life and nonlife) insurer, has formed a joint life assurance undertaking with Midland Bank.
- Scottish Equitable has done similarly with the Royal Bank of Scotland.
- Standard Life bought 35% of the Bank of Scotland four years ago. Standard Life is the U.K.'s biggest mutual and recently signed an exclusive distribution agreement with Halifax, the U.K.'s biggest building society. Significantly, insurers have now signed up all but two of the top-ten building societies in the U.K. as exclusive distributors.

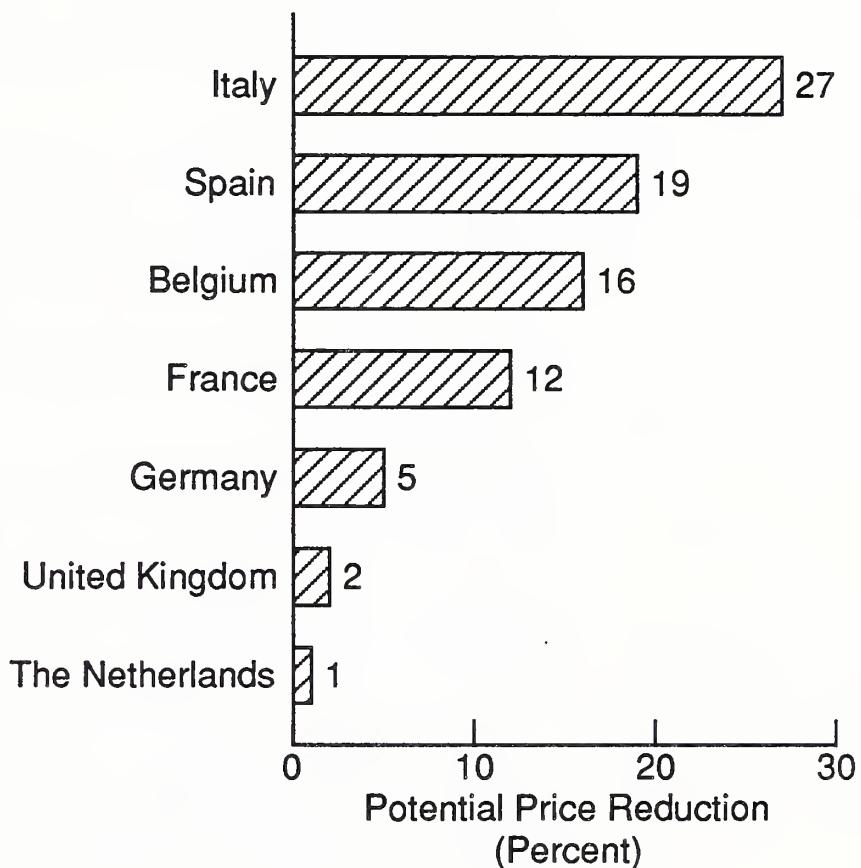
- Aachener und Munchener Beteiligung-AG (AMB), a large German insurance and financial services group, has bought the trade union Bank für Gemeinwirtschaft. Allianz, Germany's largest insurer, has a distribution agreement in five Lander with Dresdner, the second-largest bank, and the companies plan a 10% cross-shareholding.

A key question for the future is the way in which insurance will continue to be sold. Although the prevailing opinion is that life assurance and related savings products are too complex to be sold off the page, figures from Eagle Star in the U.S. reveal significant cost implications: direct selling (by telephone or by mail) costs 10-12% of premiums; selling directly (through one's own intermediaries or outlets) costs 12-17%; selling through independent agents costs 25-30%. The gap may be narrower in Europe, where direct mail is less familiar and perhaps gets a lower response. However, the comparison has been sufficiently suggestive for Eagle Star in the U.K. to take a share in AA Insurance Services, which will sell Eagle Star life assurance by mailing to members and by selling through its own outlets.

Such findings and the changes in the demographic nature of Europe will mean that insurance companies will be looking for integrated networks and software products to enable them to reach more customers, more quickly and more effectively, particularly would-be pan-Europeans who do not have well-established independent brokers. The potential price reductions in insurance in a single European insurance market are shown in Exhibit III-12.

EXHIBIT III-12

The Value of European Insurance Integration: Potential Price Reductions



Source: European Commission

2. Country Markets

The European Market can be divided into three groups:

- France, Greece, Ireland, Italy and Portugal allow insurance to be offered only by companies authorised and established in their own countries.
- Denmark, Germany and Luxembourg allow customers to deal with foreign insurers but stop intermediaries like brokers and agents from placing the business across borders.
- The U.K. and The Netherlands have no restrictions, and Belgium has only a few restrictions (on the life side).

Governments in the first two groups protect their companies' solvency by setting high premium levels. Dutch and U.K. insurers in contrast are monitored only on capital adequacy. With an eye partly on the EC, governments are beginning to ease insurance regulation. France has

amended its insurance law; Germany's cartel office has recommended relaxing the regulation of policy wordings and rates. Switzerland (which last year signed an agreement with the EC guaranteeing nonlife insurers' mutual freedom of establishment) has forbidden industrywide price-fixing in some classes of business. Two other sorts of official barriers still matter, however: tax and currency differences.

Tax insurance policies vary by country. The French collect 35% tax on every motor policy sold. Most countries give income-tax relief on life assurance premiums and many countries give relief on payments to policy holders. A difficult area is the tax treatment of insurance companies themselves, especially what they can deduct for reserves and how investment gains are taxed. Software products are being developed by insurance companies' subsidiaries, such as North Park in the U.K. and Celias in France.

The currency situation offers insurers the opportunity to sell policies in currencies that suit individual markets; investment managers will need software tools to manage the corresponding reserves profitably. Indeed, a number of insurers already offer foreign-currency policies in the Netherlands, for example. Groupe Victoire is planning to introduce a D-mark life policy in France. More such moves are inevitable.

The biggest barrier to a single European market is the ingrained differences in what people buy and what people sell and the wide difference in products: 80% of German life assurance premiums were put into endowment policies in 1988; 45% of British premiums went to buy unit-linked life policies. The reason for the difference is that Germans received tax concessions on endowment policies, but not on life ones.

In general insurance, all-risk policies are common in the U.K. but less so on the continent, where insurers prefer to name their perils. Germans spend more than \$1.5 billion a year to make sure that they can pay for legal actions if the need arises. The British pay \$100 million. In the Netherlands health insurance accounts for a far higher proportion of premiums than in most other countries. Almost half of all insurance sold in Italy is motor insurance.

Where there exists commonality of product, prices are divergent. A study for the European Commission published in 1988 concluded that if insurance products were sold throughout the EC at the average prices of the four lowest-cost producer countries, consumers would save \$2.9 billion. Furthermore, different markets have different experiences as well as taxes and regulations: there are twice as many car-user deaths per vehicle kilometre in France than in the Netherlands, for example.

Although freedom of services is a laudable objective, insurers believe that its benefit is only marginal to their industry. Most insurance will continue to be sold face-to-face by local companies through local agents

to local buyers. However, the move to European integration has resulted in a corporate decision to invest in technology in order to retain competitive edge; the opportunities for vendors multiply when placed in the context of the volatility in the industry.

3. Strategic Positioning

Currently, there are considerable difficulties associated with penetrating Europe's protected insurance markets. In the U.K. and the Netherlands, established independent brokers do sell foreign insurance policies; elsewhere in Europe, the outside insurer has two choices:

- Build up a distribution system to sell products—most markets are dominated by agents tied to one company. (In Germany, Allianz has a sales force of 30,000. France has 75,000 direct company representatives and agents, but only one or two sizeable broking firms.)
- Alternatively, foreign insurers can tie up with a local firm.

The Prudential, the U.K.'s biggest life assurer, has formed an Italian life assurance joint venture with the Benetton family. Prudential Vita, the name of the joint venture, hopes to sell some of its products through "pluri-manditari"—agents who act for several companies. But the main sales force will be Benetton's own network of 230 financial consultants. Prudential Vita, like all foreign insurers, has to reinsurance 30% of its business at unprofitable rates with the state insurer.

A third option, and the one that has considerable implications for the software and services industry, is to stem the aggressive moves by some banks (in Germany the Deutsche Bank and in Italy the Banca Nazionale del Lavoro have indicated their intention to sell life assurance) by forming alliances.

There is evidence of banks' willingness to team with insurers: in Germany, Aachener und Munchener Beteiligungs-AG, an insurance company, has brought 50% of Bank für Gemeinwirtschaft. AMB's new insurance marketing team, Bank für Gemeinwirtschaft Service, is active in 30 of AMB's branches. In France, banks are the fastest growing channel for selling life policies.

The most obvious way into a foreign market is to take over a domestic insurer, a process that is more difficult on the continent than in the U.K. For example, in 1988, a Paris court stopped Generali, Italy's biggest insurer, from voting its 30% stake in Company de Midi against the French firm's defensive merger with Axa. In contrast, last year Compagnie de Midi was able to snap up a British firm, Equity & Law, without legal impediment.

However, the biggest shakeout is likely to happen amongst small insurance firms, particularly the hundreds of single-office operations scattered throughout Southern Europe. As competition increases, many may opt to become brokers and sell to their clients the more sophisticated products developed by larger firms.

Outside the EEC, Zurich Insurance of Switzerland and Skandia from Sweden already have strong European operations. American International group, the U.S. giant whose annual premium revenue is bigger than the entire Dutch market, is said to be interested in Western Europe, whilst the Japanese may yet decide to expand from their own lucrative market. If the Japanese do, then one European insurer worries that several Japanese firms "could buy any of us with their loose change."

4. A Growth Market

Insurance premiums have grown faster than GDP for at least the past 15 years and relatively faster in Western Europe recently than in the U.S. Life assurance premiums more than quintupled in France, for example, between 1978 and 1988, whilst savings grew by less than 50%. Insurance has risen briskly to make up about one-quarter of Germans' annual savings. In many countries personal deposits in banks and building societies are dwindling. Insurance companies are the main conduit for European savings—along with pension funds, whose money they often manage—and are the biggest investors. In the U.K. for example, insurers have \$475 billion in invested assets. The rules (some legislated, some self-imposed) according to which insurers invest, the terms they wring from capital market intermediaries and the way they exercise their shareholder votes, all affect the financial markets and economies of every country in Western Europe.

As high finance dominates, competition intensifies. German life insurers are in the middle of a policy-holder bonus war. Italian insurers are all but press-ganging underemployed unit-trust salespeople into selling policies. British insurers are fighting and failing to keep sales commissions from rising by up to one-third. Perhaps the only surprising aspect of these developments is the length of time they have taken.

With insurance companies following strategies of convergence, consolidation and cross-border alliances (following the path of the banks and investment houses) the problem of cost and timing arises as insurers attempt to expand when profits look set to contract.

As a result, a corporate decision for systems and network integration is being faced as an immediate priority in the more developed insurance markets, whilst in the less developed markets the advent of 1992 is opening these fast-growing markets to software and services vendors offering professional services and turnkey systems. As if to indicate the

scope, Spanish, Italian and French life assurance premiums are growing at well over 20% per year. Only 5-10% of the houses burnt in the fire that swept through Lisbon in 1988 were insured.

5. Mergers and Acquisitions

The markets in Spain, Italy and Portugal have intense M & A activity. The U.K. and France are attractive because they have fragmented insurance industries with many large companies of a similar size. In the U.K., insurers have exportable know-how in life and savings products. France is losing its appeal as the desirable partners are bought and the price of the rest rises. Germany is a challenge as a result of the web of cross-shareholdings that leave little on the open market. The Netherlands is too well-served by its own companies.

Exhibit III-13 shows how well established each of the EC's biggest direct insurers is in the largest markets outside its own, along with recent moves to strengthen these positions. All three of the non-U.K. insurers want more business in the U.K., for example:

- Allianz: Allianz has the best European base and began expanding actively in 1986. The company is rich, conservative, and oriented at home towards personal-lines insurance; it is unassailable in its domestic market. The acquisition of Cornhill gave Allianz a good nonlife and a growing life business. Its premiums have trebled since 1986. The purchase of RAS, one of the few Italian insurers with significant operations outside Italy, has underpinned Allianz's own business in other European markets; purchase of 50% of Compagnie de Navigation Mixte notwithstanding, RAS gives Allianz a good foothold in the French market.

EXHIBIT III-13

Mergers and Acquisitions: The European Position— Activity outside Domestic Markets

Company	Premium Income 1988	Country	Acquisition Activity
Allianz Germany	\$2.102 B \$1.163 B \$0.345 B \$0.311 B	Italy U.K. Spain France	<ul style="list-style-type: none"> Bought 51.5% of RAS (84-87). Bought 100% Cornhill (86). Signed cooperative agreement with Banco Popular (88). Bought 51% Ercos (89) premium income (89). Bought 50% CNM's insurance interest (89)—\$1.4 B premium income (89).
Generali (Italy)	\$1.405 B \$0.861 B \$0.637 B \$0.245 B	France Germany U.K. Spain	<ul style="list-style-type: none"> Bought 17% Compagnie du Midi (88). Owns equity and loan of AXA-Midi, \$6.9 B premium income (88).
UAP (France)	\$138 M \$134 M \$122 M	Spain Germany Italy U.K.	<ul style="list-style-type: none"> To buy Gesa 1990: \$20.5 M premium income (89). Bought 34% Groupe Victoire (89)—controls Colonia Group, \$4 B premium income (89). Bought Allesecures (89)—\$134 M premium income (88). Bought 25% of Sun Life (88)—\$1.3 B premium income (88).
Prudential (U.K.)	\$101 M	Italy	<ul style="list-style-type: none"> Joint venture with Benetton (88), restructured with L'Abeille (Groupe Victoire) (90).

- Generali: The home market it dominates is one of Europe's fastest growing. Generali has extensive property and other assets besides insurance. It is based in Trieste; like RAS, it has a network in German-speaking Europe that reflects its Austro-Hungarian ancestry and (like Allianz) has sizeable operations in Eastern Europe. It is unclear how valuable its extensive minority shareholding in France's Compagnie du Midi (now merged with Axa, against Generali's wishes) will prove to be. Already Generali is the largest foreign insurer in France. It has outposts in Belgium and the Netherlands, but its presence is minimal in the U.K.
- UAP: Fastest moving of the four. Less master of the home market, but has neutralised the challenge by one or two private sector insurers by taking a 34% stake in Groupe Victoire. Since 1987 it has built an impressive presence in Belgium through Royal Belge. UAP has bought operations in Ireland, consolidated others in the Netherlands and taken a minority stake in Greece's biggest life assurer. In 1988 UAP bought a stake in Sun Life. UAP took control of Allsecures, a subsidiary of the Fiat-linked Toro insurance group in Italy, in 1989. UAP also plans to buy Barcelona-based Gesa in Spain.
- Prudential: Strong and profitable at home (despite hefty losses on its diversification into estate agency), Prudential's most recent big acquisition was of a U.S. insurance company in 1986. Prudential has operations in Belgium and Ireland and has made a small but successful foray into Italian life assurance in cooperation with the Benetton group. Sales of the joint venture exceeded targets threefold and the business returned a profit in its first year.

Sun Alliance is developing its European presence on the back of the wholly owned operations it now has in 12 EC countries, but generally life assurers are looking to avoid hiring and training a sales force and then trying to take business from long-established locals. However, the company that the Netherlands' Nationale Nederland (Natned) started from scratch in Greece now has 12% of that market, and its Spanish life company is among the top three in new business. Royal Insurance, too, is establishing its own life company in Spain (but only after the disastrous acquisition of a local company whose principal asset turned out to be a fully occupied mental hospital!).

Cooperating with local existing firms through a joint venture or marketing agreement is the most common option. Banks again make the obvious partners. Commercial Union plans to sell life and nonlife products with Credito Italiano and to hook French fishermen on life assurance through Credit Maritime.

Links with nonfinancial retailers are proving hard to establish. Many retailers are less enthusiastic than they were about selling financial products (Benetton has pulled out of its joint venture with Prudential, for example). Instead, Prudential, concentrating on life assurance, has gone in with L'Abeille, part of France's Groupe Victoire, to build a joint business in Italy. (Groupe Victoire bought Colonia at five times its share price on the open market.)

However, it is the interrelated oddities of insurance accounting, takeover rules and stockmarket valuations around Europe that have made the picture muddled. In accounting, for example, U.K. companies report their life business on an embedded-value basis that brings forward national future earnings, and makes consolidation extremely difficult.

Different takeover rules mean that a buyer seeking control in the U.K. must offer to buy out all shareholders, whilst in Italy the amount is only 51%, resulting in Italian companies being sold at inflated prices. In the stock markets, investors in the U.K. and the Netherlands value insurance companies at lower multiples to stated earnings and often to net asset value than European counterparts. Consequently, companies from these markets find it hard to buy anybody else; merger talks between Royal and Victoire, for instance, broke down in 1988 over price. More significantly, U.K. and Dutch companies are prime takeover targets.

Allianz tried and failed to buy Eagle Star in 1983. Midi succeeded in purchasing Equity & Law in 1987. Pearl Assurance fell to Australian Mutual Provident in November for \$2.1 billion after a protracted battle. Allianz's market capitalisation (more than twice that of Europe's largest quoted bank, Barclays) reflects investors' estimates of silent reserves. Axa-Midi has offered cash for the \$4.5 billion purchase of Farmers; American regulators and BAT's shareholders have yet to make the purchase possible. Even state-owned UAP has plans to take advantage of the new French insurance law permitting reduced state ownership to raise \$880 million in 1990. Generali effortlessly almost doubled its capital to replenish reserves after buying Midi last year.

D

Western European Software and Services

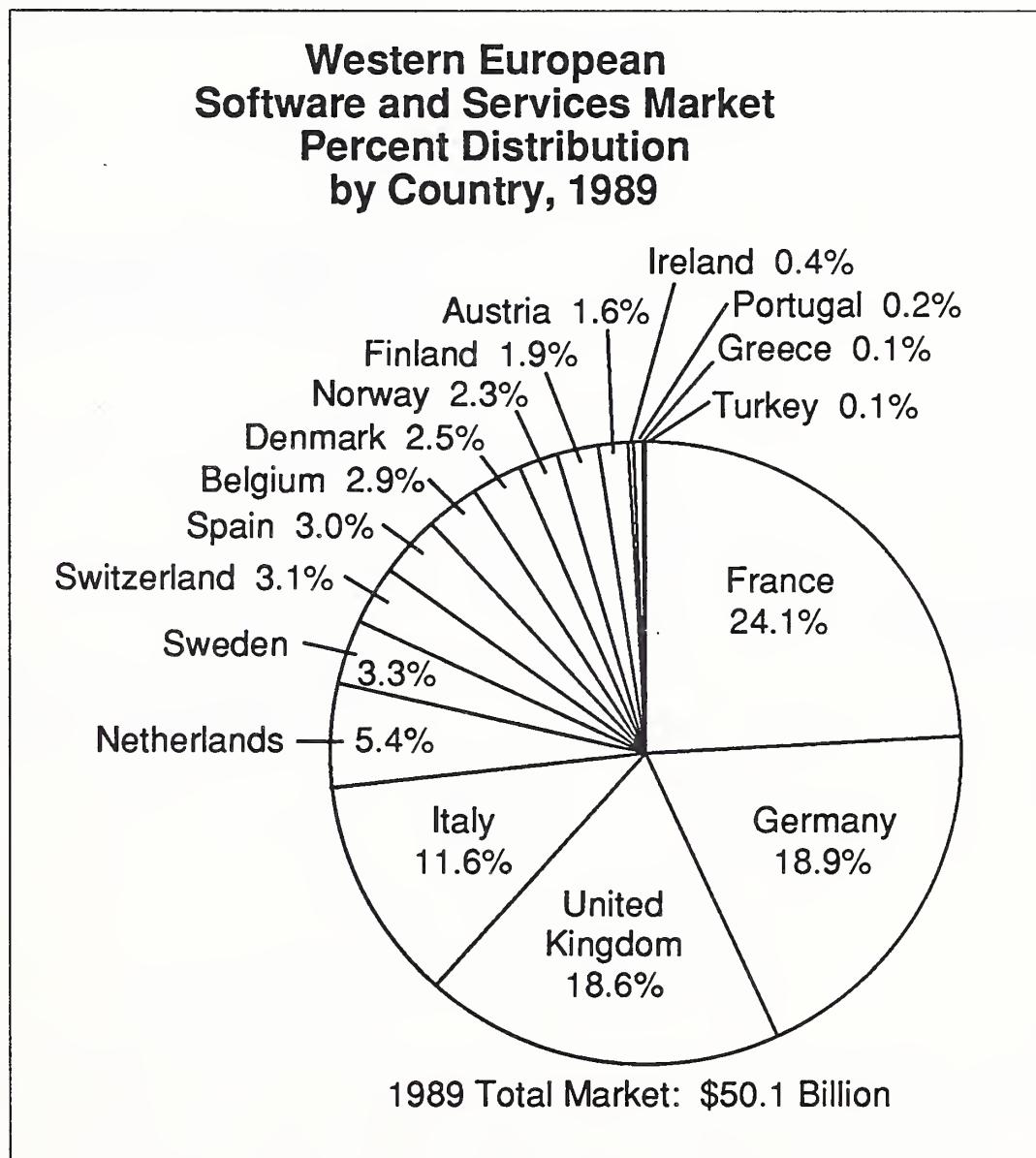
1. Country Markets

Uncertainty continues to surround market acceptance of technology as well as desirable rates and direction of technological change. However, INPUT forecasts that expenditures on software and services will, in relation to other categories of noninterest expense, increase dramatically over the next five years. The degree of increase may prove a new phenomenon for some European insurance companies.

Exhibit III-14 gives a breakdown of the Western European market by individual countries. The largest country market is France, which accounts for 24% of the overall Western European software and services

market in 1989. The software and services markets of the four major European economies—Germany, France, the U.K. and Italy—accounted for 73% of the market in 1989.

EXHIBIT III-14



As shown in Exhibit III-15, expenditures for software and services by the Western European insurance industry are estimated to reach \$5 billion in 1990. As shown in Exhibit III-16, insurance represents 8% of the software and services market. The CAGR will be 19% over the next five years to reach \$12 billion by 1995. These figures are a result of the insurance industry's being an extremely competitive, yet currently fragmented, industry that relies on software and services for support in the areas of new product and service offerings and new channels of distribution, revenue production and cost containment. Unlike the largest software and services sector—manufacturing—the insurance market is dominated by a relatively small number of large vendors, possibly as few as 3,000, with under 10% commanding almost 80% of end-user revenues.

EXHIBIT III-15

European Insurance Sector: Software and Services Market Forecast, 1990-1995

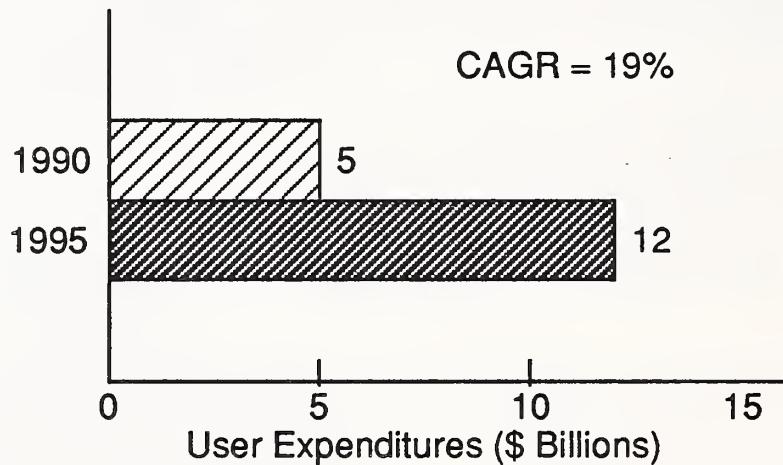
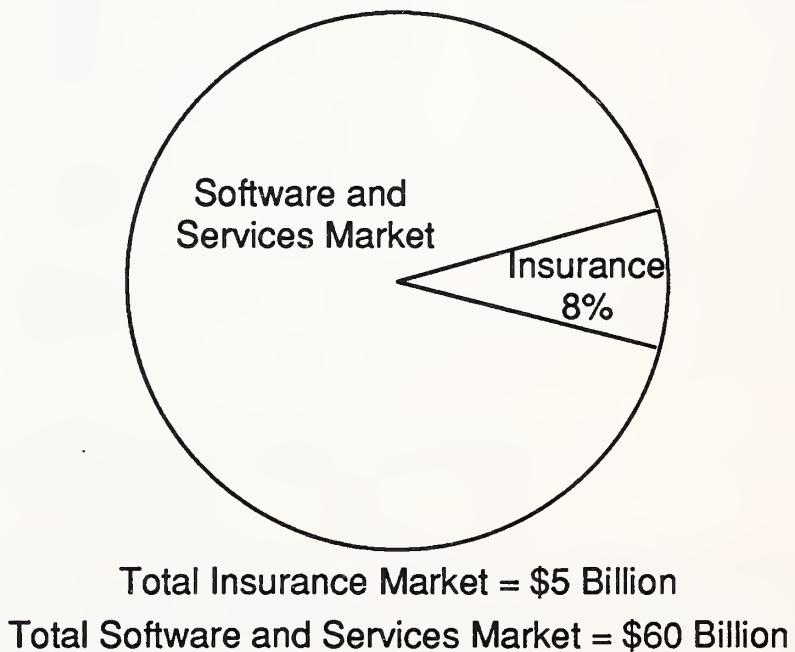


EXHIBIT III-16

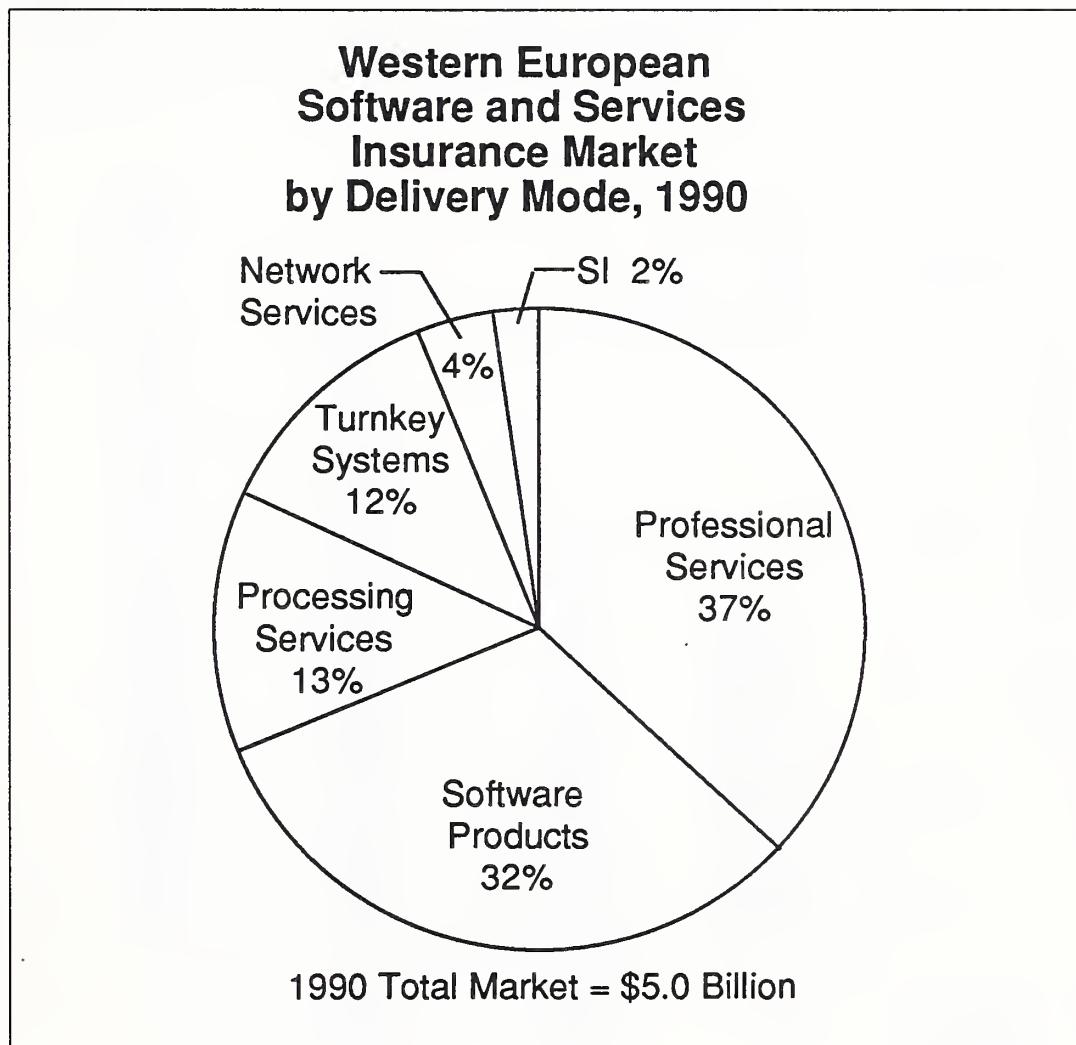
Western European Software and Services— Insurance, 1990



Naturally, the central explanation for this figure lies in the fact that insurance companies adopt centralised IS strategies, thereby making them prime targets for major vendors to serve them. As shown in

Exhibit III-17, 69% of the market is taken up with professional services and software products, where the professional services element is custom software development.

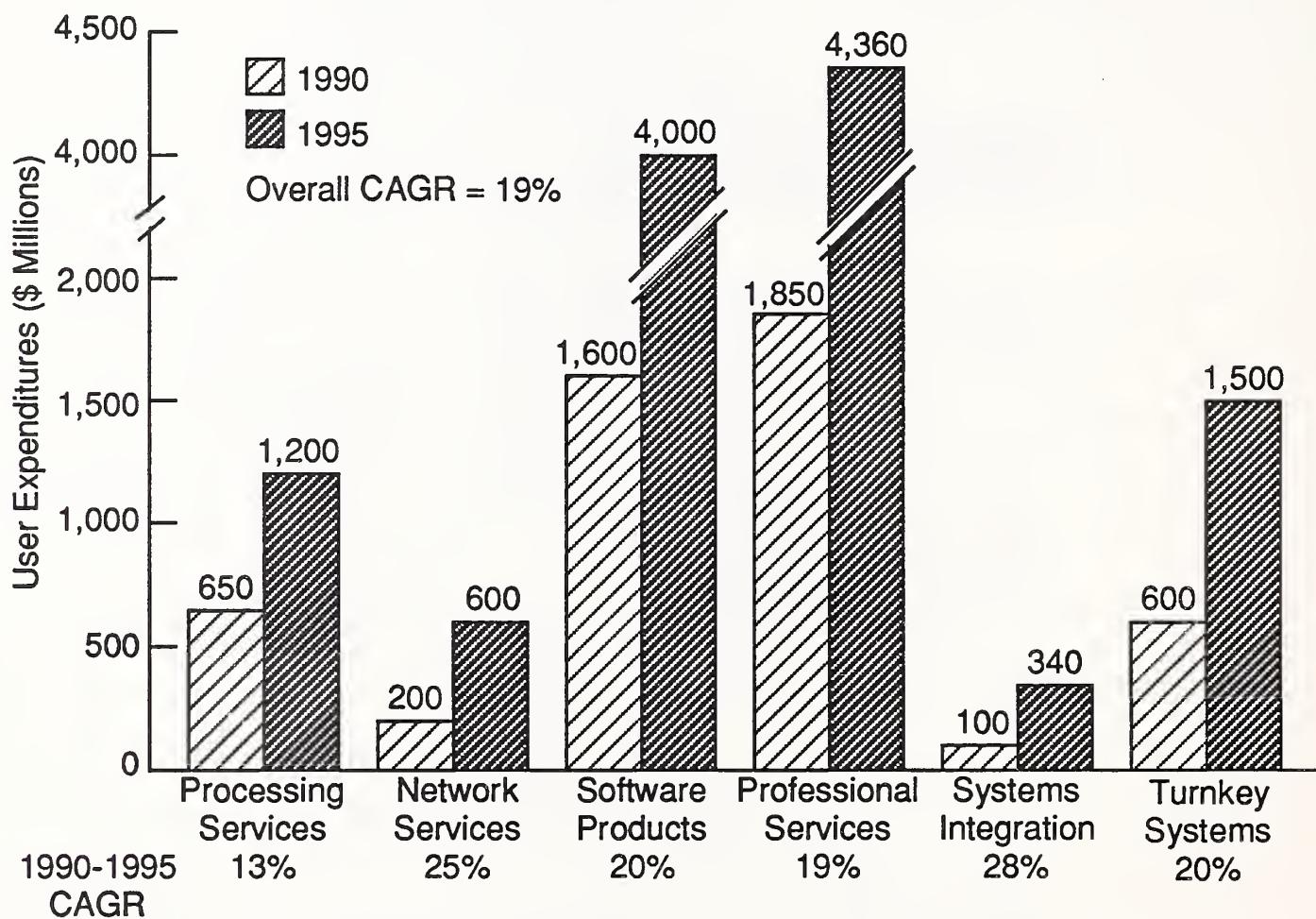
EXHIBIT III-17



During the five-year period 1990-1995, projected growth is highest in the areas of network services (25%) and systems integration (28%). Software products, turnkey systems and professional services also show growth in excess of the industry average. The total forecast is given in Exhibit III-18.

EXHIBIT III-18

**Western European Insurance Sector
Software and Services Market Forecast
by Delivery Mode, 1990-1995**



a. France

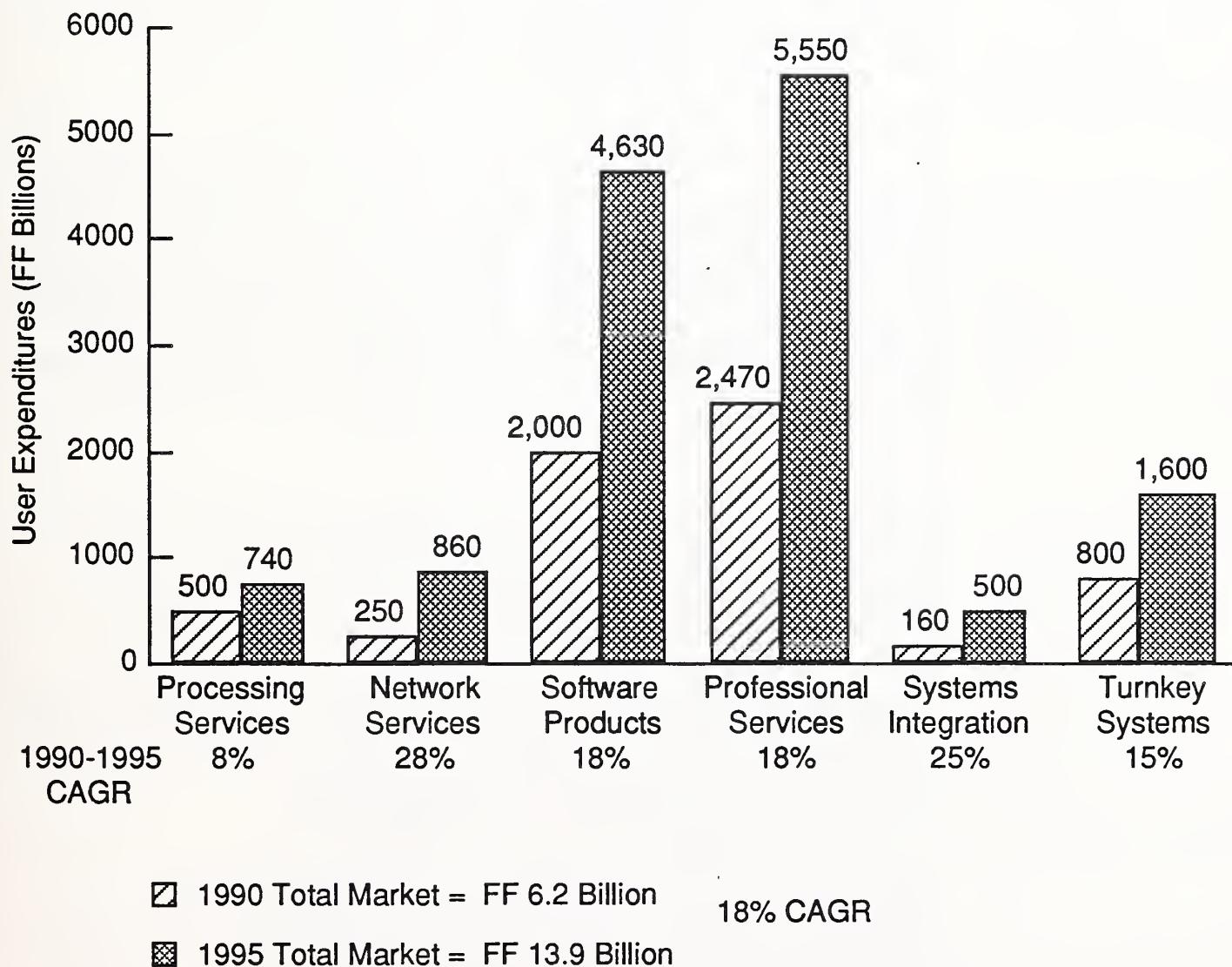
The French market, which is the largest national market for software and services in Europe, and represents some 24% of the total European market, has a strong presence in the insurance sector, due partly to the strength of French independent vendors (for example, professional services represent some 38% of the total French software and services market, compared with only 30% for the whole of Europe).

INPUT anticipates that the French market will grow at a CAGR of 18% over the forecast period and continue to provide a lead in the area of custom software development and network services. As a result of the dynamism of companies such as Celias, Sidexa and d'Arva, the French have adopted the successful Belgian Assurnet insurance network. Bene-

fitting from a single, standard network (Transpac), insurance companies have been able to develop software to run on the network—for example, Credit Agricole subsidiary Predica developed the package Capsco. Credit Agricole, France's largest mutual bank, started Predica as a life assurance subsidiary in 1985. In 1988 that subsidiary, Predica, was number two in the business. The French market forecast is given in Exhibit III-19.

EXHIBIT III-19

Insurance Sector Software and Services Market Forecast, 1990-1995 France



Mergers between domestic companies have been most conspicuous in France, where the struggle for control of insurance has provided vivid financial battles in the past two years. Two powerful, predominantly private sector insurance groups have emerged; Axa's merger with Midi in 1988 has formed a strongly capitalised group whose premium income makes it the second largest in France. In December, UAP took a complicated stake in Groupe Victoire (new owner of Germany's second largest nonlife insurer, Colonia) along with a large investment group, Suez. UAP and Victoire say they will continue to compete in France but cooperate abroad.

In France many of the agents have exclusive distribution rights in their territories and require software tools to enable them to compete with the large companies and banks looking to streamline or broaden distribution. For example, the banks doubled their share of life and savings policy premiums to 38% in the ten years to 1988. Credit Agricole wants to use its experience to develop nonlife products, as does Credit Lyonnais, whose life assurance subsidiary is among the top ten in France.

Keen to extract maximum advantage from their high-tech equipment and information networks, French banks and insurance firms are joining forces on an increasing scale. UAP, France's biggest insurance group, and Banque Nationale de Paris (BNP) are looking to bring their activities together. La Société de Banque de L'Orléanais, which belongs to the Indosuez group, recently allied with Mutuelles Régionales d'Assurances, a leading insurance group, to sell financial products together and to investigate other possibilities for joint ventures. La Compagnie de Midi, also a large insurance group, is currently negotiating with Société Générale.

Such linkups between banks and insurance companies began three years ago when insurance giant GAN took a 35% stake in bankers CIC. In 1986 some 31 insurance companies had stakes above 5% in banks, whereas 35 banks had comparable shares in insurance companies. The entry of banks into the sale of life insurance policies is accelerating. Apart from the state-controlled Caisse Nationale de Prévoyance, an insurance group that is part of Caisse des Dépôts et Consignations, banks control about 40% of the capital of the life assurance industry in France. Crédit Agricole's insurance subsidiary Predica is a market leader, with a turnover of FF 8.7 million for the first half of 1988.

Predica is followed by a cohort of insurance offshoots of major French banks, such as Compagnie Bancaire's Cardif, Crédit Mutuel de Strasbourg's ACM-Vie, BNP's Natio-Vie, Société Générale's Sogecap and Crédit Lyonnais' Medicale de France. These are natural matches. Financial synergies will continue to dictate more alliances of this type because banks are borrowing while insurance companies have money to spend. This spate of mergers and acquisitions means that incompatible

systems will have to be rationalised whilst IS managers are trying to dramatically redesign systems to meet with the demands of a single European insurance market. With the types of services traditionally delivered to the insurance industry needing to be modified and/or radically redesigned, there are considerable opportunities for software and services vendors.

b. United Kingdom

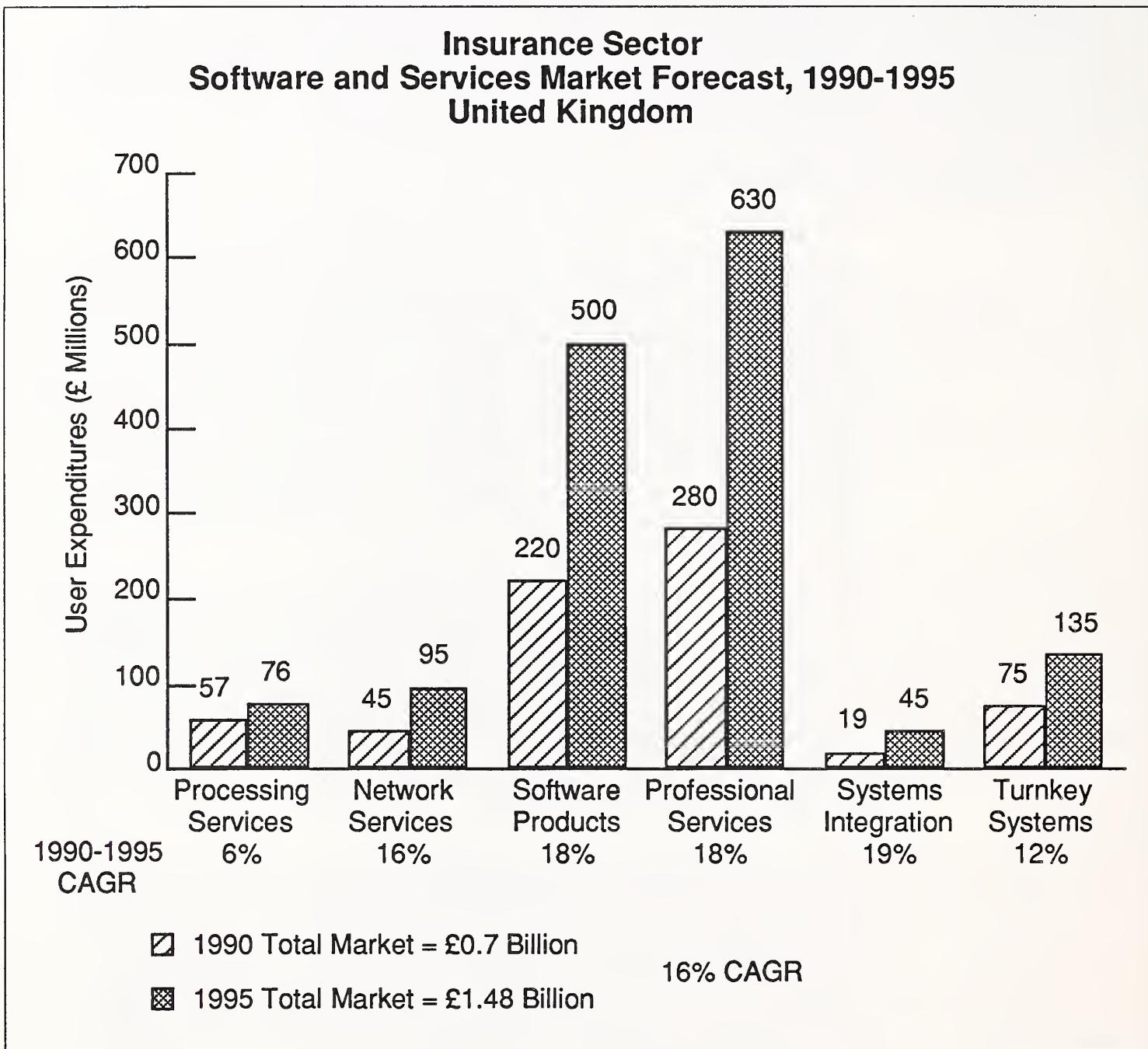
The U.K. software and services market is the third-largest in Europe, totalling £4.7 billion (\$7.7 billion) in 1988. As a result of the Big Bang, vendors have enjoyed considerable opportunities in the banking, finance and insurance markets and have expanded into financial services. Vendors are thus in a strong position to exploit the European insurance market in the 1990s. INPUT anticipates that the U.K. insurance software and services market will show a CAGR of 16% over the forecast period, with strong growth in network services as the importance of EDI and other network services becomes apparent to the myriad of brokers, independents and agents in the U.K. The U.K. market forecast is given in Exhibit III-20.

Another key opportunity will be in systems integration. The vulnerability of U.K. companies to mergers and acquisitions (see preceding chapter) means that incompatible systems will have to be rationalised whilst IS managers are trying to dramatically redesign systems to meet with the demands of a single European insurance market. Because the types of services traditionally delivered to the insurance industry will need to be modified and/or radically redesigned, there are considerable opportunities for software and services vendors.

To meet the demands of the insurance market in the 1990s, new back-office systems need to be flexible and capable of fast, inexpensive modification to allow new insurance and financial services products to be launched whenever the market demands. Insurance companies are therefore very keen to exploit 4GLs and CASE tools. For example, several of the U.K.'s clearing banks have written insurance for years. Royal Bank of Scotland pioneered direct motor insurance in 1984. Barclays has run a smallish but profitable life operation since the early 1980s. One of the fastest growing and least recognised of the U.K. hybrids is TSB (Trustee Savings Bank), a cooperative bank incorporated in 1986. More recently, Lloyds Bank added a controlling stake in Abbey Life to the much smaller insurance subsidiary it already owned.

Software suppliers such as MCS have attacked Origo Services, the body set up to promote use of technology amongst insurance brokers, for not including suppliers in Origo's list of recommended suppliers.

EXHIBIT III-20



Origo is backed by 15 insurance companies and has just invested £2 million in Fame Computers, thereby throwing doubt on Origo's impartiality. Origo has approached only 5 companies as recommended suppliers, with the list having remained static for six months. As a consequence, the six companies with Origo approval are cleaning up. MCS supplies software to 150 medium to large brokers with 3,000 users.

In the U.K., independent agents and brokers have always had a big role. The demand for integrated networks and systems amongst these large financial conglomerates is likely to alter this situation, especially in areas where sales commissions are high.

The U.K. Financial Services Act has given a preliminary indication of what can happen when regulation changes in such an information-intensive industry. Insurance companies estimate the cost of the Act at between 20-40 person-years of computing effort, a cost of upwards of £1-10 million in systems updates, as much again in user effort and documentation and the ongoing operational costs of extra printing.

Insurers are concerned that the whole system could go into reverse for 1992. The U.K. life insurance industry has gone from being one of the least regulated to one of the most regulated in Europe. As a partial result of the complications and costs involved with regulatory changes, thirty-six life company members of the Association of British Insurers (ABI), the main trade association of insurance companies operating in the U.K., have agreed to provide computer and technology support to independent financial advisers.

c. Germany

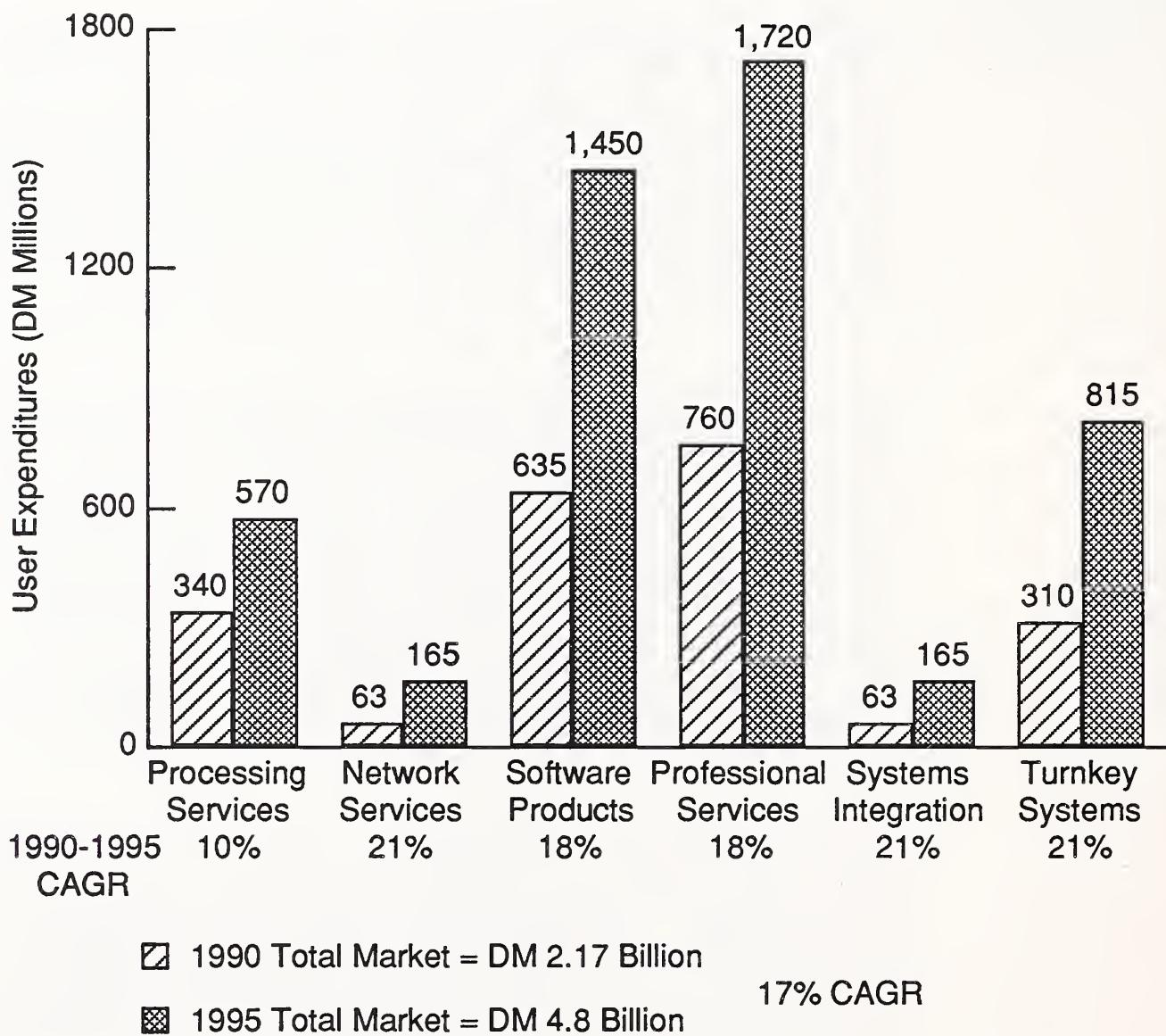
The German software and services market is the second largest in Europe, with a total size of DM 15.6 billion in 1988 (\$8.1 billion). INPUT estimates that the German insurance software and services market will have a CAGR of 17% over the forecast period as the Germans maintain their lead in the turnkey systems market. Germany's three important domestic equipment vendors—Siemens, Nixdorf and Mannesmann Kienzle—are all major software and services vendors in the German insurance market. Siemens is strong in software products, as well as the largest equipment vendor. Siemens' recent acquisition, Nixdorf, is very strong in turnkey systems. The German software and services market forecast is described in Exhibit III-21.

Tied or semi-tied agents sell more than 75% of the insurance in Germany and as a result the number of mergers and acquisitions means that incompatible systems between banks, insurance companies and agents will have to be rationalised. Meanwhile IS managers are trying to dramatically redesign systems to meet the demands of a single European insurance market. With the types of services traditionally delivered to the insurance industry needing to be modified and/or radically redesigned, there are considerable opportunities for software and services vendors.

The banks launched the challenge. It was the long-mooted decision of Deutsche Bank, Germany's largest commercial bank, to start writing life assurance directly that prompted Allianz and Dresdner to link. With banks running 90% of the unit trusts in Germany, there is a demand for risk management and financial analysis tools.

EXHIBIT III-21

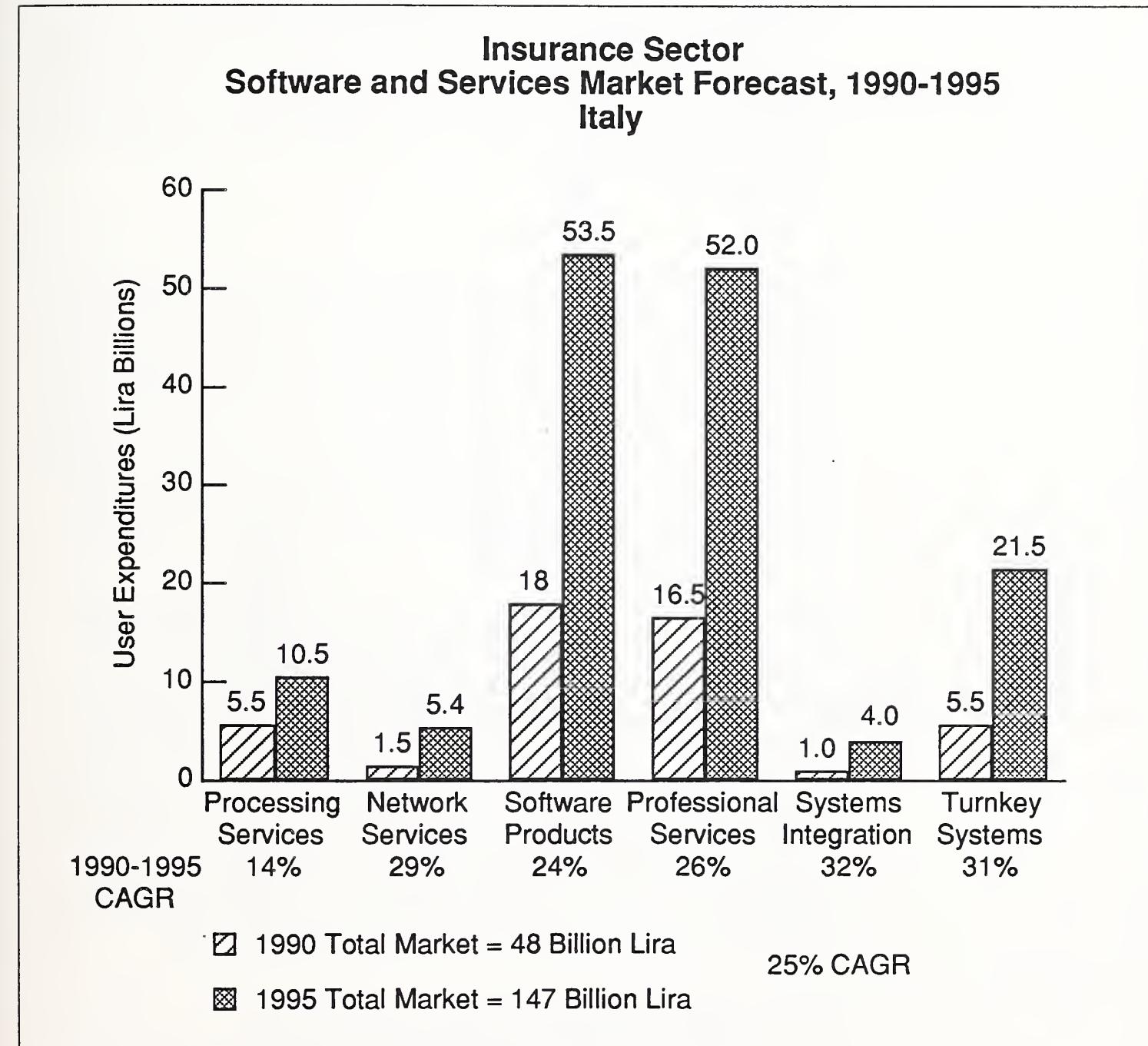
**Insurance Sector
Software and Services Market Forecast, 1990-1995
Germany**

**d. Italy**

Italy's software and services market is the fourth largest in Europe—6,740 billion Lira (\$4.8 billion) in 1988. The Italian software and services insurance market is forecast by INPUT to have a CAGR of 25% over the forecast period. Although U.S. vendors have a strong presence in the Italian market, Finsiel, the largest Italian domestic vendor (83% state-owned, 17% by Banca d'Italia; Finsiel specialises in processing services and bespoke software development) and Olivetti (with its

systems, networks and information services) are both gearing up to the single European market. The Italian market forecast is given in Exhibit III-22.

EXHIBIT III-22



In Italy, several smaller insurance companies are merging. It is possible that Generali and LA Fondiaria group, Italy's largest and third-largest privately owned insurers, may well merge in the near future. Foreign insurers are marching into the Italian market in force. Allianz took control of RAS, Italy's second-biggest insurance company, in 1987. Insurance Royal bought Lloyd Italico in 1989 and La Baloise of Switzer-

land bought Tirrena in January 1990. The Italian insurers association reckons that foreign-controlled companies now reap one-third of all new premiums.

With this level of merger and acquisition activity, incompatible systems will have to be rationalised at the same time that IS managers are trying to dramatically redesign systems. With tied or semi-tied agents selling over 80% of the insurance in Italy, and with the types of services traditionally delivered to the insurance industry needing to be modified and/or radically redesigned, there are enormous opportunities for software and services vendors.

e. Spain

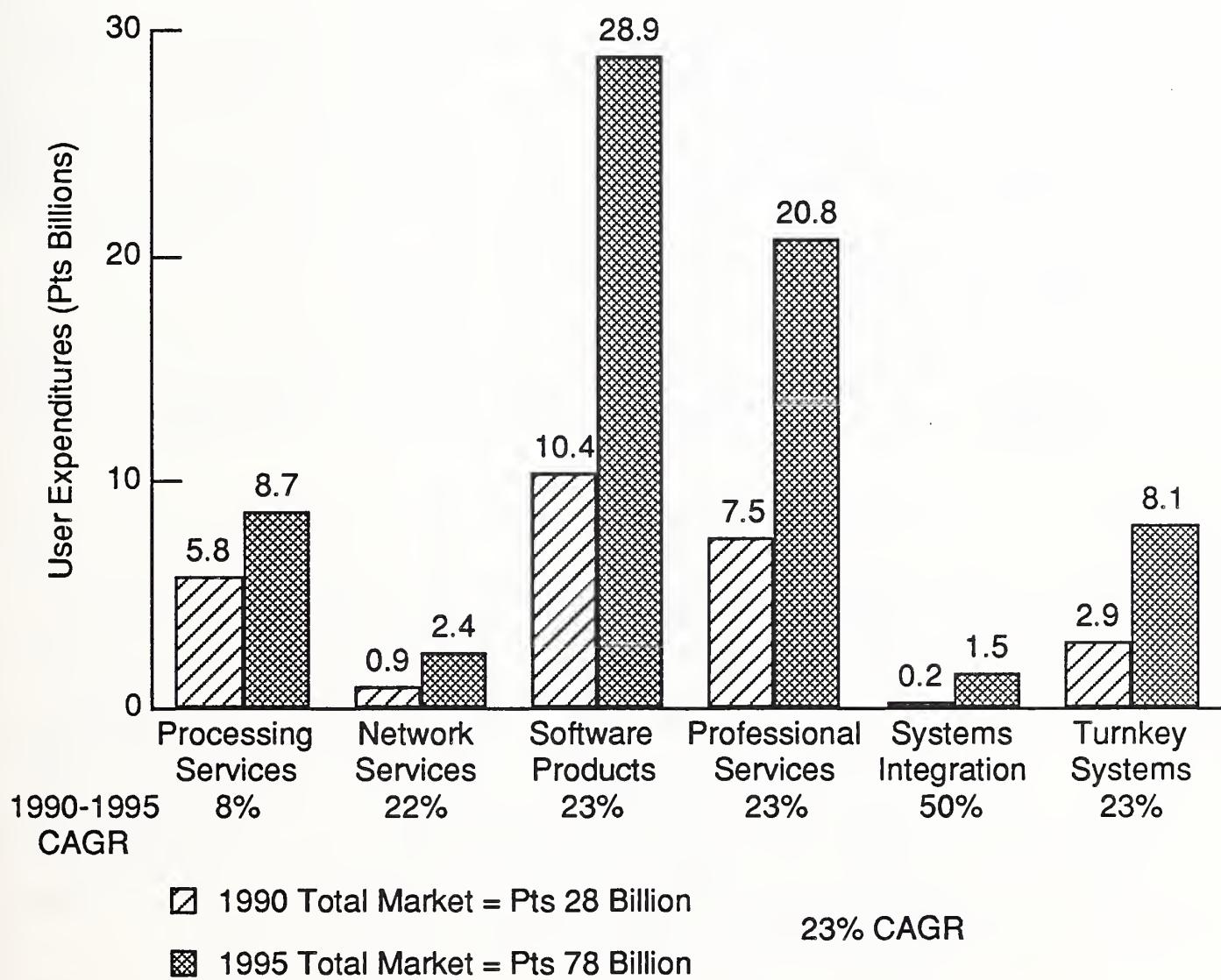
Although the Spanish software and services market was the eighth largest in 1988, INPUT forecasts that by 1994 the Spanish market will be the fifth largest in Europe. INPUT forecasts that the Spanish market should grow from Pts 28 billion in 1990 to Pts 78 billion by 1995. The insurance software and services sector will show a CAGR of 23% over this period. IBM is the largest software and services vendor in Spain; the largest domestic vendor is ENTEL, which is partly owned by Telefonica. ENTEL in turn owns 35% of Ibermatica, the leading Spanish professional services and software products vendor. The Spanish market forecast is given in Exhibit III-23.

Spain has the largest penetration by foreign vendors of all European markets, both in software and services and in insurance. Half of the capital of the Spanish insurance industry is foreign-owned. Allianz bought 51% of Basque-based Ercos in 1989 and is integrating Ercos into its own and RAS's Spanish operations. Allianz also has a distribution agreement with Banco Popular, along with a 5% stake. Scottish Provident has picked up the Spanish business that Equity & Law was forced to shed by its new acquirers, Compagnie du Midi. Eagle Star has started a joint pension-fund management company with Tabacalera, the tobacco monopoly. The three big state-owned French insurers dominate the market, along with Switzerland's Winterthur. In Spain bank subsidiaries dominate the sale of life assurance.

Spain is a growth market for insurance. For example, about 70% of Spanish homes are uninsured and the national health service is in a poor state; therefore, it is anticipated that more people will be turning to private medical insurance. The Spanish economy is booming and so are sales of insurable items, such as cars, flats and furniture. All are good reasons, foreign insurers think, why Spanish premiums of \$4 billion in 1987 will go on growing by about 25% per year.

EXHIBIT III-23

**Insurance Sector
Software and Services Market Forecast, 1990-1995
Spain**



In 1984, two years before it joined the EEC, Spain began liberalising its insurance business. Since then, foreigners have scrambled to stake their claims. France's AGF snapped up Omnia; Helvetia, a Swiss firm, bought Chasyr. In April 1988 Tokyo Marine and Fire and Sumitomo Marine and Fire said they would open offices in Barcelona. Generali of Italy has linked with El Cortes Ingles, Spain's biggest retail group, to sell house insurance. American International Group plans to funnel all its medical insurance business in Europe through its Spanish subsidiary. The Spanish government is concerned at the foreign presence in its insurance industry; foreigners' market share is over 50% of total premiums. However, all this merger and acquisition activity means that incompatible systems must be rationalised whilst IS managers are trying to dramatically redesign them to meet with the demands of a single European insurance market. With the types of services traditionally delivered to the insurance industry needing to be modified and/or radically redesigned, there are considerable opportunities for software and services vendors.

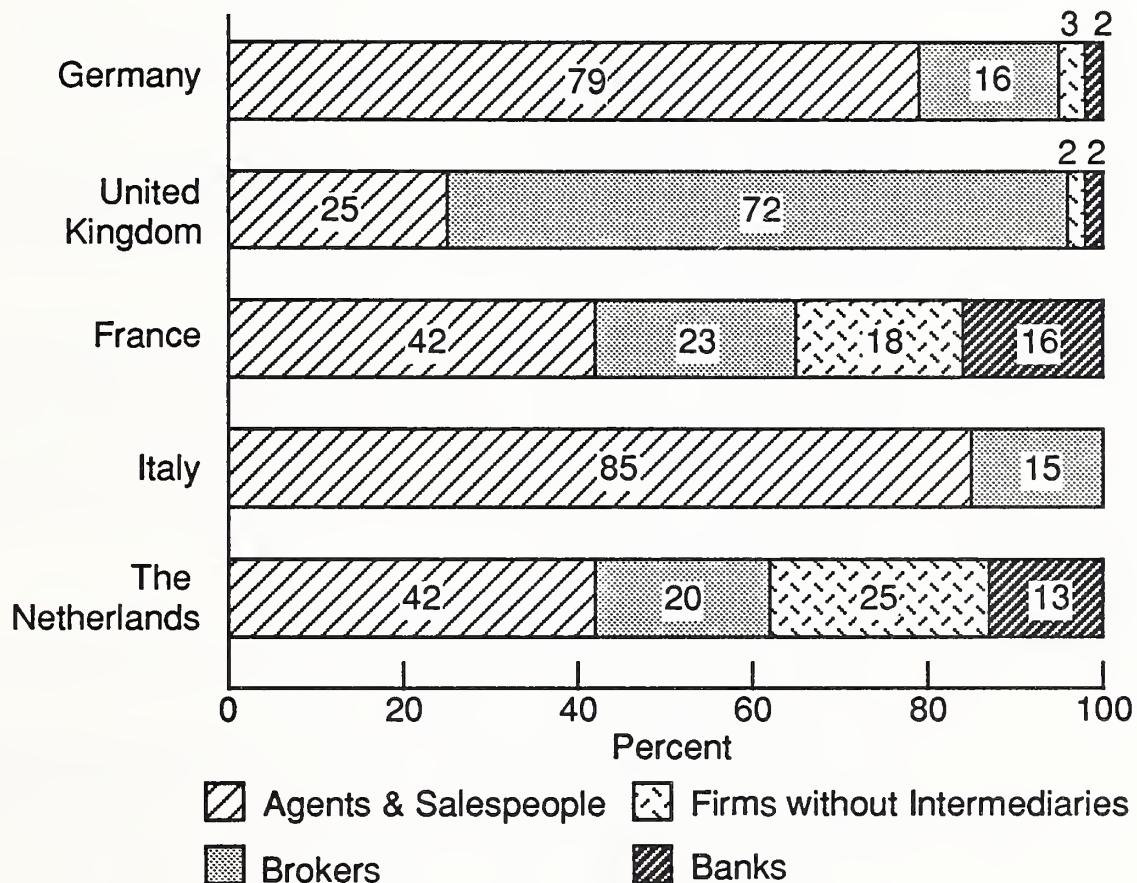
Market forecasts for other country markets—Belgium, the Netherlands, Scandinavia and the rest of Europe—are provided in Appendix F. Leading vendors for the three major country markets are included as Appendix G.

2. Software and Services: Delivery Modes

The complex structure of insurance companies presents considerable challenges for software and services vendors. Tied or independent agents, brokers and banks all sell insurance in most European countries, but the mix is varied. Tied or semi-tied agents prevail in mainland Europe. As can be seen from Exhibit III-24, agents and salespeople sell more than 75% of the insurance in Germany and more than 80% in Italy. In France many of the agents have exclusive distribution rights in their territories and have hampered companies looking to streamline or broaden distribution. In Spain, bank subsidiaries dominate the sale of life assurance whilst in the similar markets of the U.K. and The Netherlands independent agents and brokers play a large role.

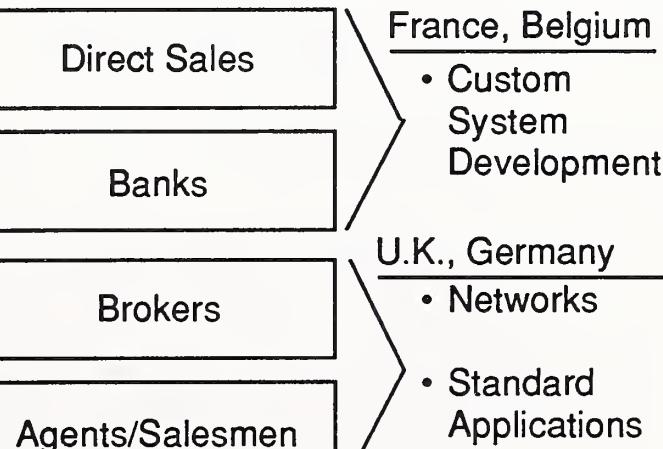
As shown in Exhibit III-25, the fragmented nature of the insurance industry means that the software and services market has distinct national characteristics. France and Belgium concentrate on major in-house developments, and the U.K. and Germany look more towards networks, packaged solutions and turnkey systems. The strategic positioning occurring in Europe means that insurance companies will continue to invest in systems, networks and software as a result of competitive pressures that force insurers to sacrifice short-term earnings in favour of strategic investment decisions in pursuit of diversification. This, for software and services vendors, is the key challenge, and a major opportunity for professional services companies.

EXHIBIT III-24

European Insurance Market Sales Structure

Source: Companies

EXHIBIT III-25

Insurance Companies' Systems Needs

Professional Services

The entry of banks into the insurance companies' traditional markets is causing insurance management concern. The need to compete with the banks on a technological level has become increasingly important as two factors become clear:

- The growing base of competition for the general consumer market
- The growing sophistication of the corporate customer

Information technology will become increasingly important in the development of a marketing strategy. As discussed earlier, the prospect of a free European internal market in insurance has led to insurers' looking to grow by merger or acquisition simply to survive.

However, INPUT anticipates that the creation of a pan-European insurance market is still likely to be a drawn-out affair. The European Commission may have issued a directive allowing cross-border trade in big risks—nonlife insurance for companies with more than 500 employees or a \$25 million turnover—but for this directive to be workable depends on the two following factors:

- The existence of appropriate distribution
- The existence of unmet insurance demands in Western Europe

Whilst a prevailing view is that the approach of a single market has precipitated the frenetic wave of insurance mergers and acquisitions that has occurred over the past two years, such as the merger of the AXA and AGP groups in France, with the big players striving to form pan-European alliances in order to shore up profitability and grab distribution systems, the acquisition activity actually predates the wave of expectation surrounding 1992. INPUT notes three interlocking factors promoting mergers and acquisitions:

- The first factor is the relative underdevelopment of insurance—especially life assurance—in Southern Europe. This growth potential of the southern European markets has spurred Allianz and the big Swiss insurers—such as Zurich Insurance, Winterthur and Swiss Re—to annex Italian companies in particular. Winterthur recently bought the Rome-based Intercontinentale Assicurazioni; Swiss Re failed to gain control of the Trieste-based Lloyd Adriatico in 1987.
- A second factor is the intense fragmentation of the French and Spanish markets. France and Spain each has more than 500 insurance companies, and both countries are aware of vulnerability. There has been room here for some time for the kind of consolidation that occurred in the U.K. in the late 1950s and 1960s when a series of mergers created the big composite insurers that now dominate the nonlife market.

- Third is the little-noticed worldwide trend for sluggish growth in reinsurance volumes as the growing size of the primary underwriting companies enables them to retain more of their own risks—a factor which has helped drive Europe's big professional reinsurers, such as Swiss Re, to seek new markets.

These three interlocking factors driving European insurance integration translate into several major issues for software and services vendors selling to the industry. Firstly, any new systems have to provide for the legislative changes occasioned by the European Commission's financial services directives. These changes directly affect the industry and companies selling to the industry. Making these changes is a huge task, and the insurance IS departments are being severely stretched.

Cost containment is a key issue. With insurance companies in Western Europe expanding by mergers and acquisitions, there is a need to boost productivity and improve revenues; vendors should consequently be looking to offer additional services as a way to maintain competitive edge and to improve productivity. One of the key areas is risk management: financial analysis programs, decision support tools and electronic information services providing actuarial and investment information are some of the products and services that go some way to reducing insurers' risk exposure. Exhibit III-26 illustrates risk management.

EXHIBIT III-26

Key Area: Risk Management

- Financial analysis programs
- Decision support tools
- Electronic information services

With the spate of mergers and acquisitions occurring in the Western European insurance industry, software and services vendors are presented with an opportunity to develop ways of connecting systems using different equipment, software and communications. However, these products need to be made available so that information can be shared within the resulting organisation in a short time frame: prompt sharing is unquestionably the challenge. Sharing also highlights one of the current difficulties vendors are facing: the length of the development cycle. Cycles need to be reduced to satisfy the demands of insurance. On the other hand, long cycles offer opportunities for new players.

The IS managers within insurance companies are faced with a series of management challenges: the central objective of providing services to user groups is hindered by the need to improve revenues and cut costs. With information handling being such a key activity in insurance, IS managers are looking for flexible systems that can be expanded and modified for long-term usability.

This requirement is particularly noteworthy given the huge backlog of applications at insurance companies: users constantly need new applications, enhancements to existing ones and maintenance of existing operations. Furthermore, with consolidation occurring as a result of acquisition, IS managers are finding that they are called upon to integrate systems as well as establish decentralised IS functions. In addition, there is a chronic shortage of skilled staff throughout Western Europe. As a result, INPUT is anticipating high growth in the professional services sector as more and more companies turn to third parties to help carry out these sea changes.

Finally, for end-user departments within insurance companies, the issues are clear: access to information enables end users to offer more services and higher quality service to customers. In addition, users want systems compatible with customers' and suppliers' systems, as well as those within the organisation. With end users becoming more involved in the application development process, INPUT anticipates that the network and software products sectors of the insurance market will experience strong growth. A summary of the key opportunities is given in Exhibit III-27.

EXHIBIT III-27

Software and Services Vendor Opportunities—Insurance

- Network services
 - EDI
 - EIS
- Software products
 - Application development
 - Customisation
- Professional services
 - Integration of systems
- Turnkey systems
 - Southern Europe (for agents)

a. Processing Services

Processing services include remote/batch processing services and systems operations processing services. Remote/batch processing services include transaction processing services, utilities services and other processing services.

- Transaction processing services utilise vendor equipment and software at the vendor or customer site, and may be interactive or remote batch orientated. Transaction processing involves manipulation of customer-owned data.
- Utilities services provide access to basic software tools that enable users to develop their own solutions.
- Other processing services include carry-in batch processing, data entry services and disaster recovery/backup services.

Systems operations (formerly termed facilities management) vendors provide a complete operating information system for customers—including equipment, software, personnel and facilities.

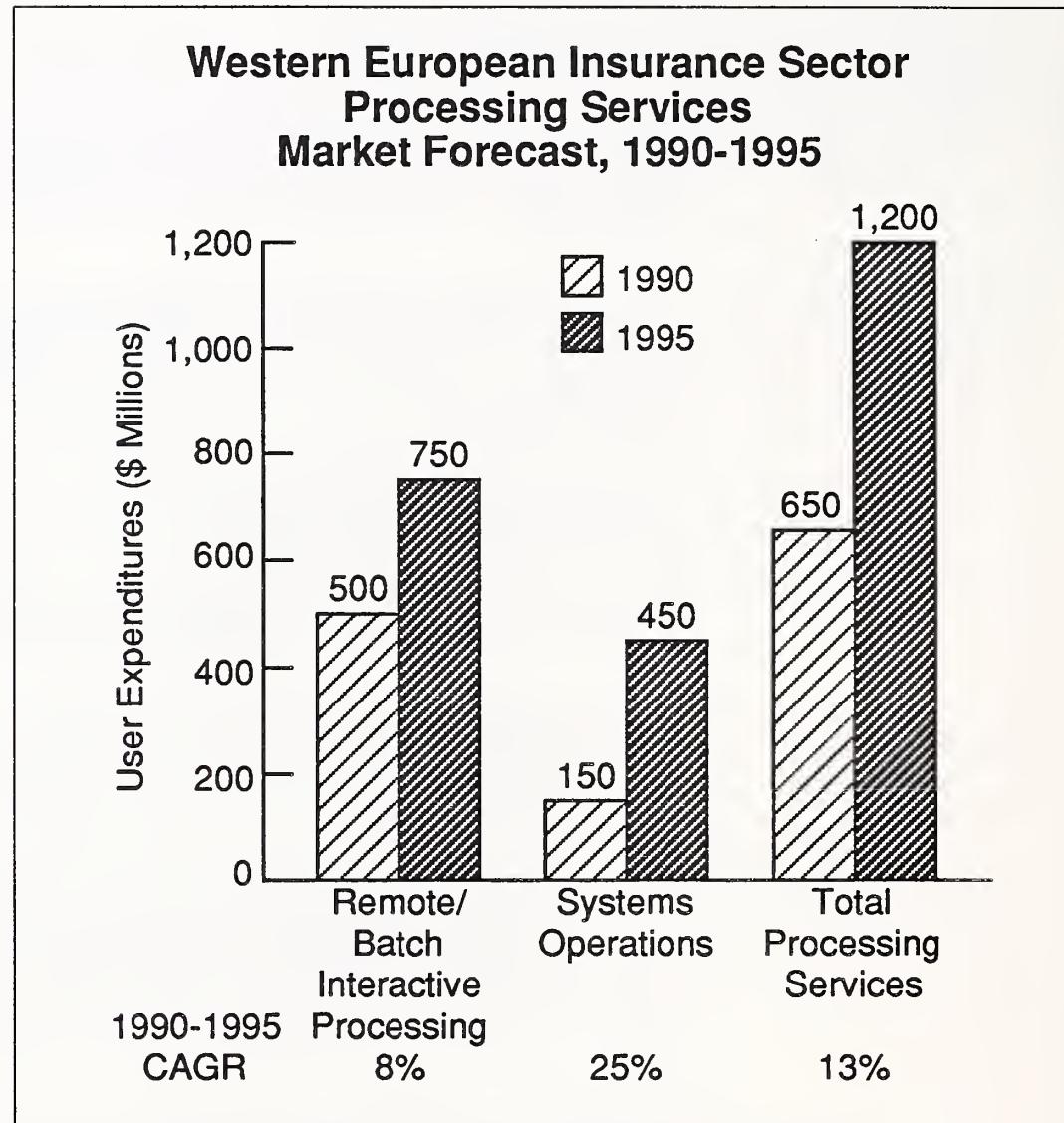
As insurance companies handle more of their processing needs internally, the processing services market has shown slow overall growth. However, in the less developed markets of southern Europe, growth will be above the industry average. Overall the Western European processing services market is anticipated to have a CAGR of 7% over the forecast period.

Exhibit III-28 projects growth for transaction processing and systems operations within the insurance industry over the period 1990-1995.

With much processing being done in-house and with a considerable part of the software products sector being systems software delivered by equipment vendors such as IBM, the major opportunities in revenue terms in insurance are in the area of custom software delivered as professional services.

Commercial Union, for example, believes that it needs to reduce the cost of processing life insurance policies by automating new business in life insurance—from individuals' initial requests to the placing of policies in their hands.

EXHIBIT III-28



One area of the processing services sector that is likely to experience significant growth rates in the near future will be the provision of services that, rather than having an immediate and tangible effect on a company's business performance, are aimed at supporting the increasingly complex technology that over 80% of businesses say they now depend upon. This lucrative area is disaster recovery, especially since only about 40% of companies have any contingency plans at all for disaster recovery, despite the fact that many companies would be out of business after one day without their main computer.

Sherwood Computer Management, part of Sherwood Computer Services Plc and supplier of disaster recovery services for Prime and ICL users, has expanded the range of its services and support for DEC and IBM machines, UNIX on Pyramid and Sequent, and has set up a new standby centre in Leeds to complement the existing one in Salisbury.

Sherwood's philosophy is, "prevention is better than cure"—the company offers a number of consultancy services to minimise the risk of a disaster's occurring in the first place. Sherwood defines *Disaster* as

“anything that disrupts normal computer use, whether due to flood, fire, or more typically, programmer/operator error.” At the core of Sherwood’s operation are the Hot Start and Cold Start standby services that are designed to get the system back on-line once such a disaster has happened. Hot Start Standby aims to provide an equivalent level of computer resources at an alternative location—either the Salisbury or Leeds site. Clients load their software onto the standby site system and receive communications facilities linked to their own site.

Typically, a client will be back on the system within three hours of the breakdown. In the event of the complete destruction of the client’s computing centre, the Cold Start service will provide alternative accommodation for the data processing department in fixed or relocateable units, all the networking hardware and software, and all facilities to allow the new computer to be installed as soon as it arrives from the supplier. Sherwood’s disaster recovery services are invoked on a first-come, first-served basis, although there is a chance of a dual claim. A dual claim is defined as two companies needing to use the standby sites at the same time. With the Salisbury site alone, the probability of a dual claim coming in from a base of 40 clients was calculated at 300 to 1 against; now, with the Leeds site, the odds against a dual claim have risen exponentially to 30,000 to 1 for the same number of clients. Even with the 100 or so customers now on its books, Sherwood believes that it can offer a risk factor small enough to be acceptable to even the most risk-averse of operations. Despite the obvious advantages, take-up for the services—which come under the Guardian Portfolio tag—has been characterised by a great deal of inertia, even though Sherwood claims disaster recovery costs represent on average only about 2% to 3% of a firm’s total data processing budget. However, INPUT believes that a new attitude towards disaster recovery is making itself felt—local and central governments are sending out directives for recovery contingencies, and many facilities management contracts include a clause requiring disaster recovery plans. What would help this development in Europe is legislation similar to that in the U.S., where directors are personally liable for compensation to interested parties—such as shareholders or backers—in the event of a system breakdown.

b. Network Services

Network services include network applications (managed data networks, electronic mail, electronic data interchange) and electronic information services.

- Managed data networks are network transmission facilities that are augmented with computerised switching and features such as packet-switching, terminal interface and error detection and correction.
- EDI is application-to-application electronic communication based on established business document standards.

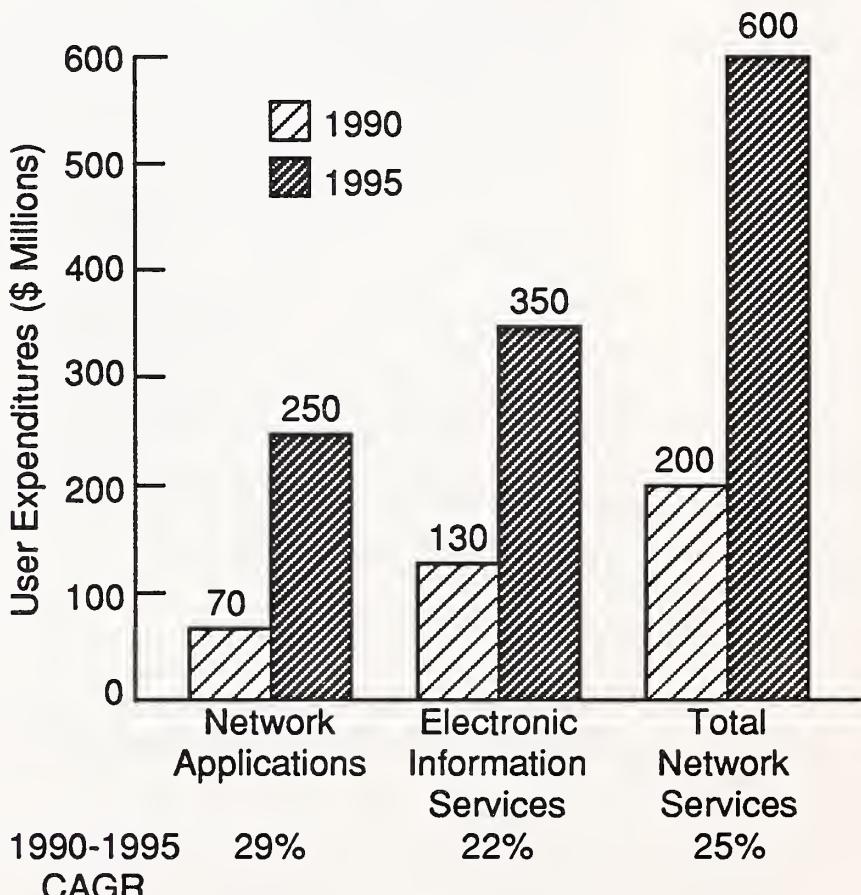
- EIS includes databases, news services and videotex services. Databases provide specific information via terminal-based inquiry. Available information includes stock prices, legal precedents and economic indicators. News services offer current information, either general or for a specific category. Videotex services provide interactive access to databases and offer the inquirer the capability to send as well as receive information.

Insurance companies are relying more on network services, especially EIS (on-line databases) and insurance industry networks (RINET, BROKERNET and LIMNET in the U.K.; ASSURNET in Belgium and France; and MEGANET in Germany, for example).

As a result, expenditures in these areas are forecast to increase significantly over the forecast period. Exhibit III-29 outlines the growth expected in network services, including a breakdown between network applications and EIS for the insurance sector.

EXHIBIT III-29

Western European Insurance Sector Network Services Market Forecast, 1990-1995



In March 1988, IBM beat GEIS to the multimillion-dollar worldwide insurance network contract for the cooperative formed by eight of Europe's largest reinsurance companies, including the U.K.'s Mercantile and General Re-insurance. IBM was chosen as the network supplier for its Reinsurance and Insurance Network (RINET) project. This was IBM's second success in networking for the insurance industry—in 1987 IBM won the contract to link Lloyd's and the London Insurance market (LIMNET). GEIS pointed out at the time that the insurance industry might regret entering the EDI market by choosing a vendor that buys into the market at or below cost. However, RINET commenced operation early in 1989, and used the newly approved EDIFACT (Electronic Data Interchange For Administration, Commerce and Transport) standard, initially to link reinsurance companies throughout Europe. Most of the founding members had IBM installations; in terms of avoiding network gateways, IBM had the better penetration. Additionally, RINET will use the same interface standard as the London Insurance Market Network. The two may be eventually linked with the IVANS insurance network in the U.S.

Furthermore, the insurance industry is a natural candidate for electronic data interchange (EDI):

- INS runs the BROKERNET motor insurance system.
- Istel financial services and Misys Dataller, a software house specialising in insurance systems, have a joint-marketing venture to provide EDI between intermediaries and insurance companies, also in the motor insurance area.
- IBM provides the network for a development in insurance EDI that could lead to a revolution in the way intermediaries deal with insurance companies.

The recent launch of an IBM insurance network running on the new RISC System/6000 (based on the IBM Information Network and INS' Tradonet network using software from Policy Master) is being perceived as a defensive measure to protect the U.K. insurance industry from the acquisitive French. The network will be used for VBS (Validated Business Systems). VBS is effectively an EDI service—using BROKERNET—that validates all transactions at the point of sale and conforms to the underwriters' professional code.

Transactions pass across the network between the insurers' mainframe and that of the broker with PS/2s on the front desks—brokers with more than 60 screens will have the System/6000. Proposal forms and policy schedules automatically print out at the broker end. The service will also include electronic mail, direct mainframe-to-mainframe interaction where authorised, and interface for telex. The cost of connection (a modem,

IBM 3270 emulation hardware and software, Policy Master software and all equipment) is £9,000 for a one-screen system; six screens cost about £17,000. The service is aimed at the motor insurance sector of the industry; Policy Master is offering grants to brokers to lessen the blow to their finances. With the Big Eight insurance companies supporting the network, for the brokers it may be a case of connect or go under.

In France, Assurnet has enabled the French to establish a link between brokers and insurance companies, providing the link into the large insurers' exclusive distribution networks. Assurnet has been developed under the auspices of the FFSA (Federation Francaise des Societes d'Assurances). Assurnet complements the Celias (Centre de Liaison Informatique de l'Assurance) network and links twenty companies and fifteen large brokers. However, Celias was too expensive for the smaller brokers and caused compatibility difficulties with UNIX and Prologue systems.

Assurnet was chosen by the FFSA because Assurnet already linked 35 companies (80% of the market) to over 700 brokers. The software is in French, German, Dutch and English and is perfectly placed to take the opportunities afforded by 1992. The French operator will be GIA (Groupement Informatique de l'Assurance). GIA will use 90 people, an IBM 3090 200 and GTM OSI, the IBM software used for accessing X.25 networks.

The software has to be customised to take on board distinct French features, such as different postal codes, vehicle registration numbers and the ability to develop messages. However, there are no plans to link with the banks and the government network. Another potential opportunity is for a large-systems integration and a network project for professional services companies.

Policy Master, a software supplier with over 500 users in the financial services industry, is allocating up to £750,000 in technology grants for existing customers. The objective is to assist Policy Master brokers to purchase network and communications software, modems, printers and full-system upgrades. The move follows Policy Master's acquisition of Sherwood Mitronix, the broker system subsidiary of the Sherwood Computer Services Group. Policy Master is also working with IBM to enable users to gain access to the IBM Information Network. Access provides the link to the insurers' mainframe systems. Other benefits of the joint venture are that customers are able to use Screenmail and the IBM EDI facility.

Another development is a consortium of leading U.K. insurance companies that is funding the development of a system by Fame Computers called Formlink. Formlink is, for all intents and purposes, a conventional EDI system. The idea behind it is that insurers were unwilling to use

standard message formats, so the answer was to give them electronic replicas of their paper documentation. Establishing a common electronic network is crucial for the insurance business. Costs can be cut and individual insurers can compete through the quality of service they are prepared to offer their intermediaries once a level playing field has been established. These conclusions are confirmed by the holders themselves, who want standard forms for attaining quotations and for processing policies.

Taking as an example a proposal for life insurance, the intermediary calls up a standard form onto a screen, fills in the client's details and dispatches the completed form to the insurance company with a press of the button. But there is an important difference with Formlink. The form the intermediary calls up is an exact video replica of the insurance company's paper documentation. The form is been created using an image scanner. The client's details are keyed into the video document using the computer keyboard. This mix of image processing and data processing represents a significant technical breakthrough for the systems designers, Access Development of Boston in the U.S. The mix provides a simple input system for brokers and is a new approach to the reformatting problem. The technology looks very attractive.

The savings that should flow from the development of a system in which vital data are keyed into it only once are sufficiently attractive to have persuaded three leading U.K. insurers—Commercial Union, Legal & General and Royal Insurance U.K.—to invest almost £1 million over the past two years to bring Formlink to market. General Accident, Guardian Royal Exchange and Norwich Union have joined the consortium to assist in marketing the system to Britain's 30,000 or so intermediaries.

Formlink is the brainchild of a U.S. insurance technology specialist that had worked on the principal U.S. insurance network IVANS, now some seven years old. IVANS uses standard message formats through which intermediaries can communicate with their insurance companies. IVANS has not been, insurance experts agree, an outstanding success. The reasons were that a) IVANS presented intermediaries with more work and b) IVANS did not allow the insurance companies to differentiate themselves through their documentation. Additionally, Fame is expanding, having made substantial investments in LSD Software and Access Development Corporation. LSD Software specialises in software for financial intermediaries (investment, life and pension) and has 550 customers, whilst Access Development Corporation is the creator of Formlink.

Royal Insurance, Commercial Union and Norwich Union (Standard Life) all invested in Fame Computers, which aims to promote Formlink. Formlink is already used by:

- Legal & General
- General Accident
- Eagle Star
- GRE

Fame plans to link intermediaries' systems with insurers' systems and to improve communications. Fame has proved that it can make these improvements in the tied agent sector; however, there is no real difference in the systems needed for these two distribution channels.

The financial services system includes:

- POS financial planning facility
- Product illustrations
- Quotes
- Complete back-office administration system with links to Micropal and LSD, all wrapped around the Formlink package

The whole business plan can now be handled in one integrated system. Intermediaries can send all new life business directly to insurance companies' computers electronically and receive the acceptance letter immediately.

Formlink is key. Because intermediaries will often have to stock as many as 100 different forms, Formlink means that once the best product is selected, an exact replica of the correct form appears on the screen and the data can be transmitted directly to the insurer for processing. The same can be done with Fame's general-business system, which is also wrapped around the Formlink package and uses Quotel's quotation system.

Olivetti's BRISC software system is aimed at the London market and enables the risks and claims procedure to be fully integrated and streamlined. With BRISC all aspects of risk and claims process are linked to the LIMNET network. BRISC has been developed to meet all present and future requirements of the London Market Data Standards Document. BRISC provides:

- Risk processing
- Claims processing
- Market documentation
- Insurance Brokers Association ledger accounting
- Audit and management reporting

Significantly, ten leading companies in the Lloyds of London insurance market have agreed to begin trading insurance risks electronically in 1990 and to do away with some of the face-to-face contact that domi-

nates underwriting transactions. On April 1, 1990, the ten companies were to start a pilot scheme that uses a system called Contract Data Exchange. The agreement follows the creation by D.P. Mann of a prototype C-Dex system for screen based interchanges of data on individual risks between insurance brokers and Lloyd's underwriters. The system is the most radical London insurance market experiment aimed at automating transactions. A Lloyd's market information technology company called Northdoor Group will spend about £750,000 developing a production version of the system. Initially, the pilot scheme will handle only the placing of North American excess-of-loss reinsurance treaties, a type of reinsurance protection bought at Lloyds by U.S. and Canadian property/casualty insurers. The 10 companies participating in the scheme include the large Lloyds brokers; Willis Faber, Alexander Howden, C.T. Bowring and the Sedgwick group, via its reinsurance subsidiary E.W. Payne. Also involved are R.W. Sturge, the Merrett group and R.J. Kiln—three of the largest Lloyd's underwriting agencies.

Of Istel's £85 million revenues in 1989, 12% were financial services that comprised: banking services, city services and general insurance services. Istel's insurance services include:

- Failsafe (disaster recovery service)
- InView
- Viewtel
- Claimview

IFSL is one of the fastest growing Istel subsidiaries: one of the company's three major services, InView, is the market leader in the provision of screen-based, mortgage-related insurance quotations for building societies, independent insurance brokers, banks and estate agents. Overall in 1988, the number of terminals registered grew by 50%, to a total of 21,000 in the U.K. Over 700,000 quotations were processed in March alone—a rate of one every second at peak times. During the year, Opus was launched. Opus is an on-line proposal underwriting service for insurance companies. Opus allows intermediaries to complete the whole quotation-to-proposal-acceptance process on-line in one session.

Istel's independent multi-insurer viewdata service, developed specifically for the life assurance industry, runs on the Infotrac network and links banks, insurance companies, building societies and financial intermediaries, offering:

- Quotation service (life assurance, mortgage quotations, quotation storage and review, quotation printing, illustration requests)
- Electronic mail
- News and information

The ICL/GEIS joint venture INS (International Network Services) offers BROKERNET, a form of electronic postal service that allows the fast, easy exchange of proposal forms, midterm adjustments, renewals and NCD proofs between intermediaries and insurers. The joint venture has strong support from an insurance industry panel formed to steer INS's development. Members include insurance companies, Lloyd's syndicalism systems suppliers, bureaux and intermediaries themselves.

Les Mutuelles du Mans, the top French mutual insurance group, has chosen Bull to equip Mutuelles' network of 1,200 branch offices with EDP systems before 1993. Bull has a firm order for the Bull DPS 8000, 600 of the new range of Bull DPS 6 Plus minis and more than 2,000 Bull Questar 210 terminals. The contract is worth over FF 100 million and is part of the Ambition 1992 EDP project launched by Mutuelles du Mans to promote the use of new management resources and software.

In mainland Europe, a consortium of European manufacturers and users, led by NV Philips, has begun a four-year project to develop an electronic case handling system for the insurance industry. The system will use broadband communications to speed by some 50% the process of handling insurance policies across Europe. The project team aims to develop a system to let insurance companies move voice, data, text or video information from a company to the public switched network at up to 100 megabits per second. From there, the information would be transferred at 2 mbps across the public network to other sites. The project is also designed to reduce paper use, given that the European insurance industry uses up to 40 million trees a year for paper. The project team plans to develop a system based on Philips' fibre optical storage technology and gateways to the public network. The systems will in turn link to a public 2-mbps broadband network, which is planned for trial operation in 1991. A total of 17 members of CEPT agreed last month to run the European Broadband 2-mbps Interconnection Trial (called EBIT) in 1991. Other pilot applications are expected to emerge to take advantage of EBIT. Two users have joined the insurance consortium as pilot sites for the system: Commercial Union Assurance Co. of Birmingham, England and the Amsterdam-based Group Life Pensions department of Delta Lloyds.

The project's industry partners are Philips Telecommunications and Data Systems: its German subsidiary, Philips Komunikations Industrie; and France Telecom's software development unit, Telesystèmes, which will handle the security aspects of the project. The project is expected to cost around \$10.5 million over the next four years. Installation of fibre optic departmental local-area networks at the pilot sites will take place over the first two years.

In the second phase, up to 1992, network management and security aspects will be addressed and the local-area networks will be connected to the public broadband network.

c. Software Products

Expenditures for software by the insurance industry are expected to have a 21% CAGR over the next five years. Many insurance companies are handling their own information processing requirements in-house through IS departments, and as a result IS departments purchase applications when the available products meet their requirements. The types of industry-specific application software products available to the insurance industry are extensive. Products are available that handle most types of policies, claims administration, billing, client profiling, actuarial and investment analysis, decision support and management reporting.

Insurers lag behind the banking and manufacturing industries in systems applications. They have been slow to bring information technology managers to positions of influence. The tendency is for boards or decision making groups to decide what they are going to do and not to tell the information services division soon enough. Some of the biggest companies still don't have a client base, but instead have a contract base. The older systems designed in the 1960s and developed in the 1970s were built around processing insurance contracts. The focus today is on servicing clients or intermediaries. The need to rewrite software represents a substantial investment. There are opportunities for:

- Back-office software product opportunities for package solutions (BIS, Capsco)
- Single, integrated front-office solutions
 - software products (Unisys, Nixdorf)
 - bespoke solutions (CGS, SD-Scicon)
- AI software products
 - charting
 - market analysers
 - risk assessment
 - forecasting
 - deal ticket making (GEIS, Software Sciences, Concept)

Sema has provided a number of systems to underwriters and brokers and is establishing itself as a leading supplier with BOX OFFICE. Designed by underwriters, BOX OFFICE is a comprehensive risk management system that provides tools to manage business—from underwriting through claims and reinsurance to production of statistics.

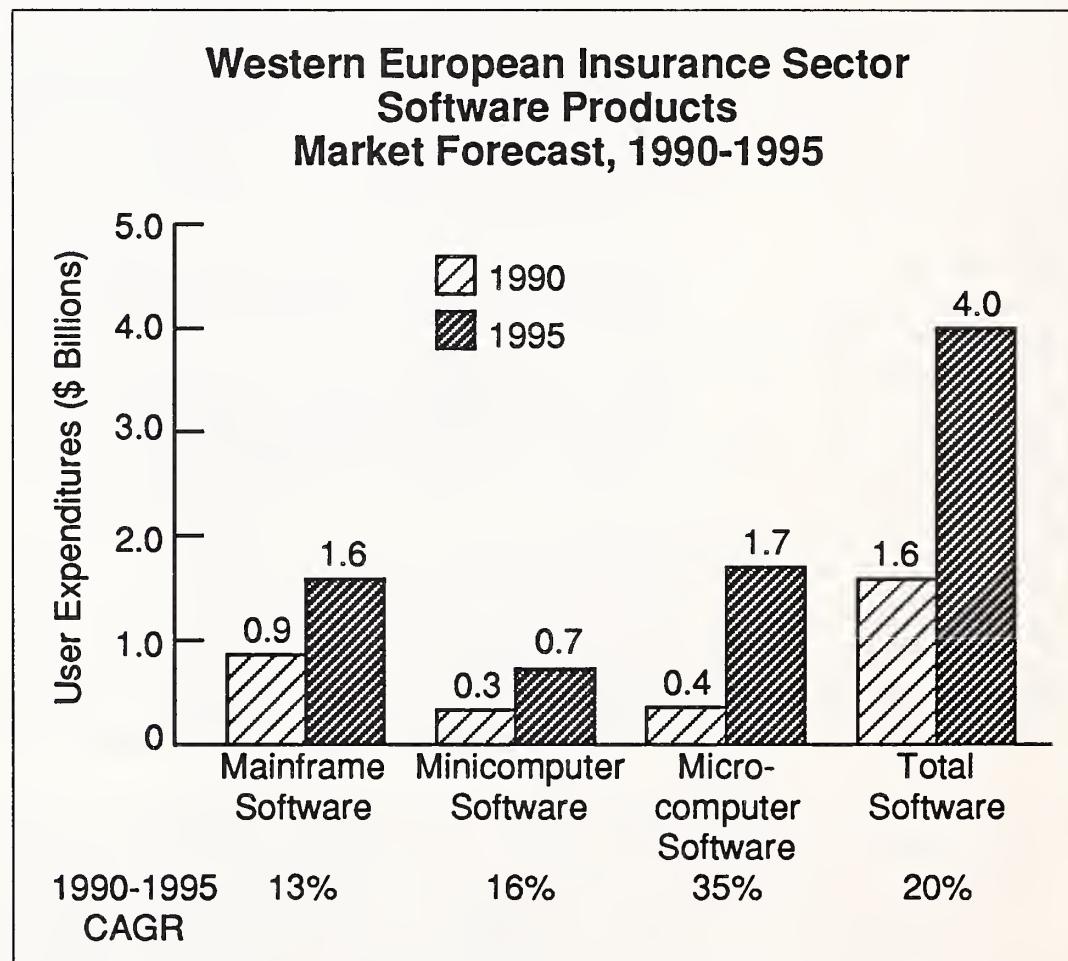
Within the insurance industry, expenditures for microcomputer applications will grow faster than expenditures for mainframe and minicomputer applications or any other type of information service. The information-intensiveness of insurance has resulted in a very high penetration by microcomputers. For example, laptop computers are used by agents to

provide claim and policy information, whilst databases containing actuarial information can be downloaded to these microcomputers so that a policy can be generated on the spot during a sales call.

In 1987, for example, Unisys launched its Financial Services System, a series of software modules that relate account information to individuals and increase the effectiveness of product development, targeting and cross-selling.

Exhibit III-30 forecasts growth for mainframe, minicomputer and microcomputer application software in the insurance industry over the next five years. To meet the demands of the insurance market in the 1990s, new back-office systems need to be flexible and capable of fast, inexpensive modification to allow new insurance and financial services products to be launched whenever the market demands. Insurance companies are therefore very keen to exploit 4GLs and CASE tools.

EXHIBIT III-30



Insurance is a key area for optical image storage: Legal & General Assurance Society is the first U.K. insurance company to install the Phillips Megadoc optical image storage system. A number of continental European insurance companies already use Megadoc, which is able to hold

50,000 A4-sized document replicas in digital form on a single optical disc the size of a long-playing record. Optical recording systems are finding favour where companies need to refer to original document facsimiles quickly. Instead of storing the original paper, new documents are scanned and the resulting digital signals are recorded on disc.

d. Software Vendor Profiles

i. Paxus

Paxus is structured into three market-focused operating groups:

- Paxus Financial Systems
- Paxus Professional Office Systems
- Paxus Information Services

- Paxus Financial Systems' target markets are insurance companies, banking organisations and financial institutions. Paxus holds the pre-eminent position in the supply of specialist software products to the insurance industry outside of North America.

Paxus' major products are POLISY, LIFE/SUPER, RFS, and other finance and banking products.

POLISY is a real-time on-line system designed specifically for the fire and general insurance industry. POLISY integrates all lines of business and functions necessary to support major insurance companies. In particular, POLISY incorporates policy administration, claims processing, accounts receivable, general-ledger and financial and statistical reporting. One of the key features of POLISY is the relative ease with which customisation of the system can be carried out to suit the individual requirements of different clients.

LIFE is a real-time on-line administration system for individual life insurance contracts. LIFE caters for traditional products such as whole of life, endowment and term insurance, as well as the newer investment, unit-linked contracts. The LIFE system, which includes a client umbrella, provides the client administration and accounting functions that companies need to manage their most valuable marketing asset—data about existing clients.

SUPER uses the same architecture as LIFE and handles the administration of group superannuation (or pension) schemes. The system provides for multiple categories of members and for different benefit structures within each scheme. Each scheme may be allocated or unallocated, with one member or many thousands of members. Full accounting and administration facilities are provided at scheme and member level.

POLISY, LIFE and SUPER have been created within a database environment and are available on mainframes, superminis and PCs. For example, Life/400 is multilingual and provides traditional life assurance contracts, plan processing and multicurrency support. Other facilities include contract administration and accounting, automated documentation, audit and batch control and security features. LIFE and POLISY use Smart software architecture which facilitates on-line real-time transaction processing. Paxus, an IBM agent, believes that the AS/400 has provided a de-facto standard for small business computing, ease of installation, and plenty of third-party software with a plotted growth path from the B30 model onwards. Support for the potential 1,200 European users will come from the data processing centre in the U.K., which houses an IBM 4381, AS/400 equipment and an X.25 packet-switching network for remote diagnostics and communications with the Australian head office.

- Paxus Professional Office Systems: major products are HAPAS, IBS and the MGE Series
- Paxus Information Services: major products are information processing, computer personnel, software development, and consultancy

Revenues (to March 1988): \$28.5 million

ii. Misys Dataller

Founded in 1979, Misys Dataller is the leading supplier of computer systems for the insurance and financial intermediary. The company provides a comprehensive range of financial services and software packages based on the company's own microcomputer hardware. The company's systems are now the major force in the market; users range from small high street brokers to national specialist brokers. As the innovator in the market, Misys Dataller's U.K. growth was increased by the company's preparedness for the changes brought by the Financial Services Act.

Product portfolio: Misys Dataller systems incorporate the company's own hardware, which is designed for standalone and multiuser environments. This unique feature of the company's product package ensures that Misys Dataller maintains complete control over the future development of the hardware and is able to react quickly to new technological developments.

Misys Dataller products have been designed for three principal sectors within the financial services market-place:

- The general broker:
 - BROOMS—the most widely used administration system for the intermediary that handles personal and commercial lines. The system addresses accounts, files, management reports, diaries and word processing.
 - SCHEME—designed to meet the needs of the intermediary that handles delegated-authority business
 - CARS—a fast and accurate motor quotation system
 - HOUSEQUOTE - a domestic building-and-contents insurance quotation system
- The life and pensions intermediary:
 - LIBRA I—a powerful administration system, particularly in relation to the Financial Services Act, with management reports, word processing, accounts and diary facilities
 - ADVISA—a client counselling system that prioritises financial needs, illustrates recommendations using an extensive database and produces quotes using videotex standards
- The investment adviser:
 - LIBRA II—an investment manager's system that provides full investment administration and automatic portfolio performance
 - MORTGAGE FINDER—a mortgage guidance system to help the mortgage broker find the best possible lender and match it to a suitable insurer.

The company has an active and growing user group, with currently over 1,000 members organised on a regional basis. The user group provides an invaluable source of feedback for future developments, as well as being a forum for educating users on the range of Misys Dataller's services. In addition to extensive training, supplies and customer support services for software and hardware, the company was instrumental in creating Misys Insurance Marketing, an organisation formed from the user group. Misys Insurance Marketing has negotiated over thirty special schemes with leading insurance companies to bring added business benefits to its members. Misys Insurance Marketing is the largest collective purchasing organisation in the industry.

Misys Dataller employs professionals from the insurance and computer industries to maintain the company's position as the leading supplier of systems to the financial and insurance intermediary market-place.

It is a received wisdom that Misys Plc is ready to sell its original Misys Dataller Computer Systems turnkey insurance systems unit at the right price (£60 million), and Computer Sciences Corp. intends to purchase Logic Inc., a privately-held financial insurance software and services company. Turnover has grown over the past three years to \$17 million.

As if to reinforce UNIX as a factor in the market-place, Bain Clarkson, one of the U.K.'s largest insurance brokers, has rejected a variety of proprietary computing systems in favour of UNIX, making Bain Clarkson the biggest commercial UNIX site in Europe, with up to 1,000 users. Contracts for the U.K. broking system have been awarded to U.S. hardware supplier Sequent and to Oracle for its database and development environment. Bain Clarkson believes that it needs a system to protect long-term investment in data and software, provide ease of maintenance and offer good portability of function. The Oracle database was the most important part of the system.

e. Professional Services

Professional services include information systems consulting, custom software development, education and training and systems operations (formerly termed facilities management). Systems integration activities, which have in the past been reported as part of professional services, are broken out separately in the next section of this report.

Professional services will have a 20% CAGR during the next five years. Expertise in custom software development and systems consulting will be required, mostly to supplement internal IS resources. Professional services growth in the insurance industry is included in Exhibit III-31. Exhibit III-32—results of INPUT's user survey—indicates the extent of the opportunity for professional services companies over the next couple of years.

EXHIBIT III-31

**Western European Insurance Sector
Professional Services
Market Forecast, 1990-1995**

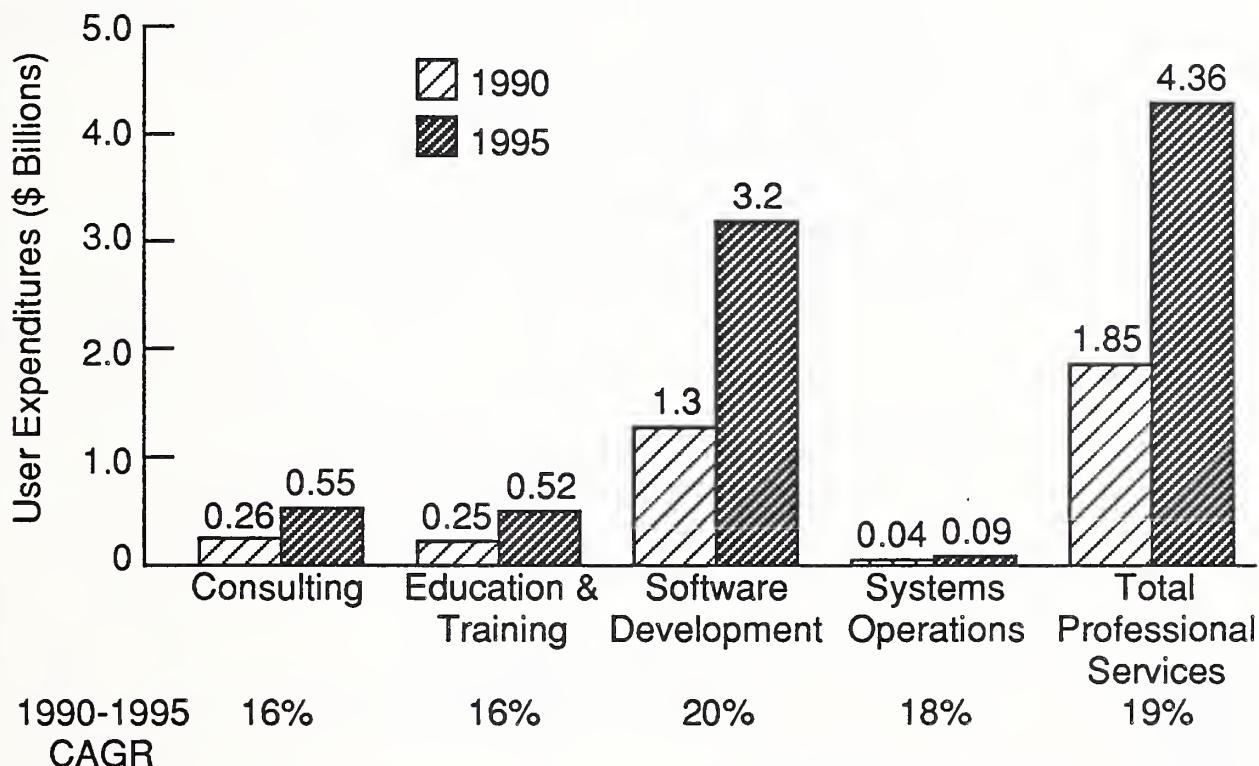
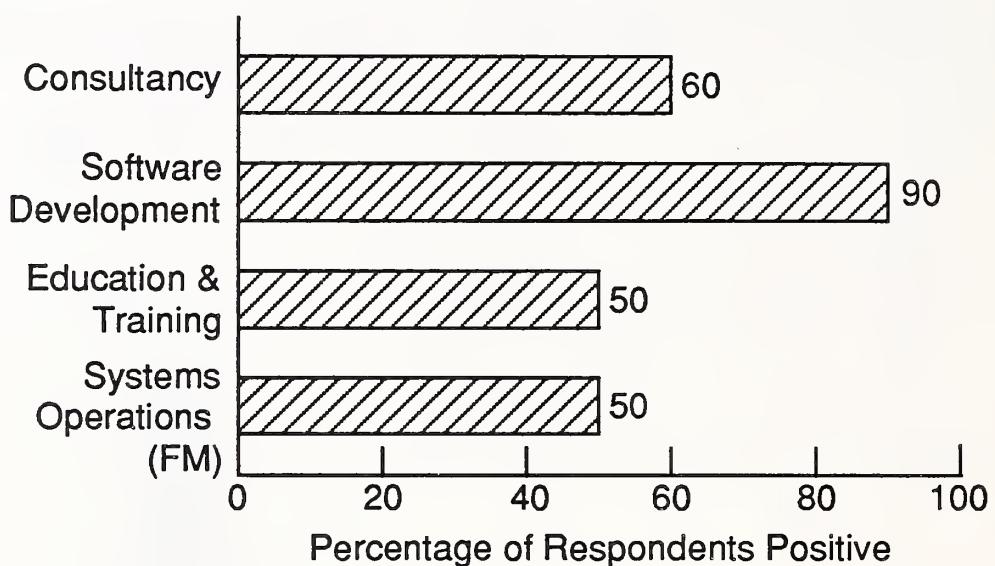


EXHIBIT III-32

Professional Services Opportunities

(These results are in response to the question:
"Are you using—or do you plan to use—
external vendors to provide you with the
following?")

Total Sample = 30
Average Standard Error = 7.5%

Another area of opportunity is developing systems so that insurance companies can offer new, sophisticated products and services to their customers. These new products and services may not necessarily demand new equipment but will demand new systems to run them. New systems is an area where third-party vendors could offer a total integrated solution.

With much processing being done in-house and with a considerable part of the software products sector being systems software delivered by equipment vendors such as IBM, the major opportunities for revenue in insurance are in the area of custom software delivered as professional services.

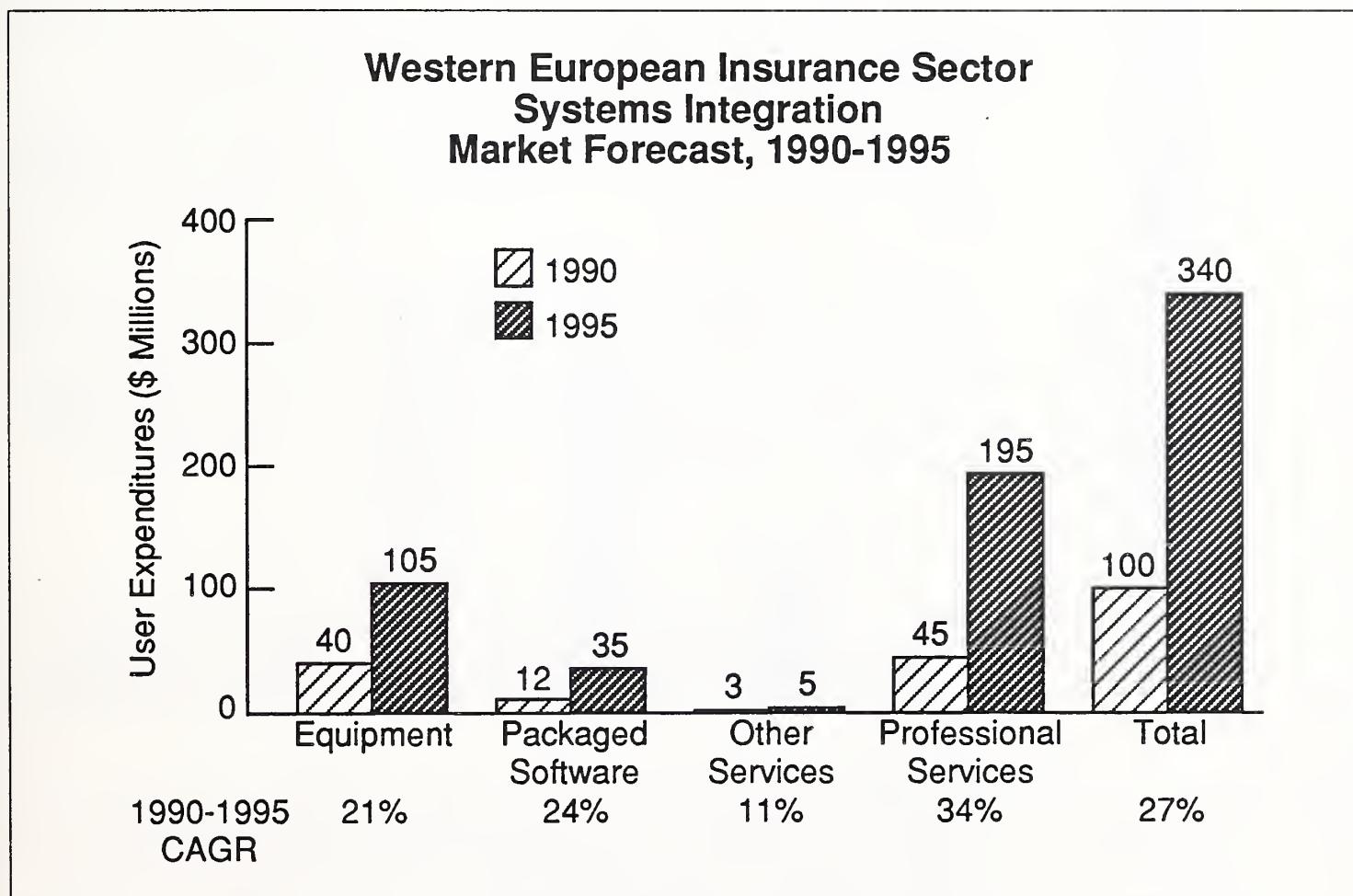
With development costs a consideration, the insurance market wants standard software product solutions, or rather kernel products that can be readily customised. For the insurance brokers and agents, standard packages and turnkey systems will be readily made available. However, the larger the insurance company, the greater the limitations of standard solutions and the greater economic sense in going for a custom solution.

Although many vendors are looking to develop and modify their standard solutions for larger insurance companies, the insurance companies themselves are increasing their size through mergers and acquisitions. As a consequence, custom solutions will increase in importance in the insurance industry.

f. Systems Integration

Systems integration is the delivery of large, multidisciplinary, multivendor systems that incorporate some or all of these functions: systems design, programming, integration, equipment, networks, installation and acceptance. Systems can encompass multiple-product delivery modes. In the past, INPUT has excluded the equipment portion of systems integration expenditures from its market estimates and forecasts. These expenditures on equipment are now included in Exhibit III-33.

EXHIBIT III-33



The Financial Services Act has created a morass of statutory regulations to wade through. Major government reforms in the field of pensions have created a rush of new business and an entirely new set of policy requirements. These changes have come on top of existing development work and often double the programming requirement for companies that are halfway through a change of systems.

Vendors must have personnel with insurance experience. Equipment vendors, in particular, have failed to find such people in the past. Insurance companies need products and services that are delivered on time. With the pressures on insurance IS managers to improve services and stay within budget, the challenge to find skilled staff will remain key to the success of vendors.

Vendors need to decide whether to target the standard solution market—the less mature and niche-oriented markets—or custom solutions for large conglomerates. Networking and integration skills will have to cover LANs for the branches and WANs for interenterprise demands.

Scottish Life, for example, operates seven Burroughs Unisys medium-frame computers and will be moving to large systems by the end of next year. Scottish Life will be using the 4GL line. Norwich installed two IBM 3090 6005 machines and 450 programmers and analysts among its 800-person-strong management services team, but even these resources were stretched. NPI, a medium-sized insurer with over 100 people in its systems development department, took in 16 temporary staff in 1987/1988 to prepare for the Lautro rules. NPI runs Bull DPS 90/92s but devolved much of the logic to the branches, in order to carry out quotations directly on its own DPS 6 mini systems. As a result, these systems have had to be changed as well because they are two different architectures.

Aetna Life & Casualty, Andersen Consulting and DEC are joining forces to develop an investment management and accounting system to be marketed to insurance companies and other financial services organisations. Andersen and Aetna will develop the Invest-1 system using DEC computers, communications networks and database management software for launch later in 1990.

g. Turnkey Systems

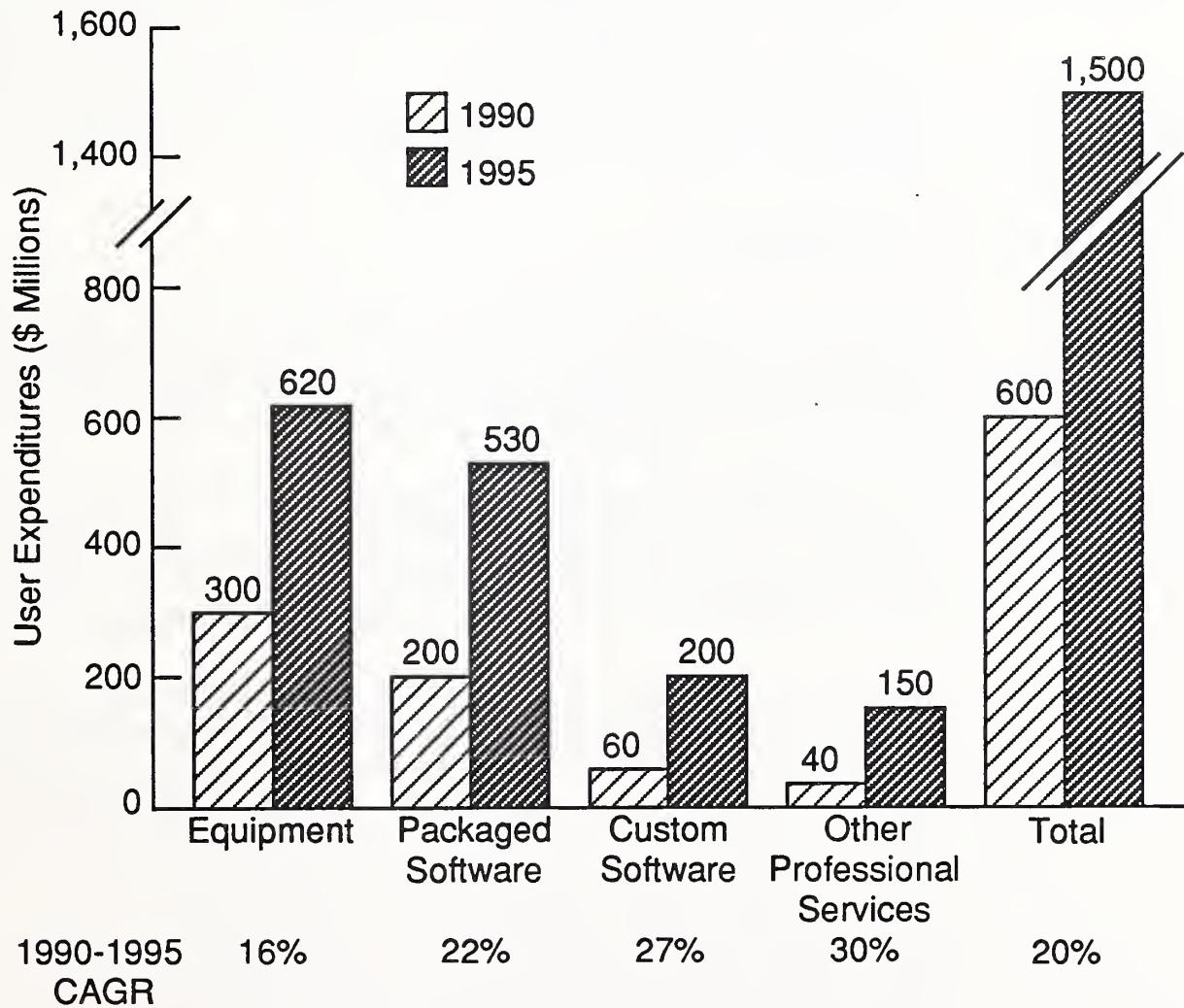
Turnkey systems provide the integration of systems software and packaged and customised application software with CPUs, equipment and peripherals. Turnkey systems are packaged and delivered as a complete applications solution.

The turnkey systems market in the insurance industry is extremely diverse: the German market is very well developed and Nixdorf is the clear market leader. However, despite a growth rate of 22%, the existence of large insurance companies whose own IS departments handle the specific requirements of their own organisation in-house means that the turnkey systems market has peaked. Another reason for the peak is the fact that these organisations already own their computer equipment and prefer to install packaged or custom software.

The turnkey systems market is shown in Exhibit III-34. Growth will occur predominantly in southern Europe in the form of microcomputer systems for agents. Information systems for agents in the field increased the Nixdorf lead in the insurance market. The installed base of workstations at branch level in German insurance companies is more than 18,000. Through compliance with national insurance industry requirements in other countries, Nixdorf is geared to achieve further growth in this sector.

EXHIBIT III-34

Western European Insurance Sector Turnkey Systems Market Forecast, 1990-1995



Faced by the dismantling of trade barriers in the service sector in the single European market and growing competition for single-source financial services, insurance companies are under increasing pressure to widen their product portfolios and seek new customers. Insurers also

need to sharpen their response to growing customer requirements for improved products and services.

This trend spurred Nixdorf sales to the insurance sector in 1988. The standard Nais information system, which can be customised to individual user needs, offers computer support in the field to insurance agents at agencies and branches. Forty large German insurance companies have installed the system. Available with the system is a variety of financial consulting programs that run on laptops and support insurance agents on sales calls. Agents use this software to counsel clients on almost every aspect of the insurance business and to print quotations and policies.

Besides computerised sales support for the insurance business, the product spectrum includes the Nais-M software solution for insurance brokers and multiple-company agents. Nais-M handles a variety of functions but is designed primarily to optimise administration. A significant innovative development for Nixdorf has been the provision of expert systems to facilitate risk assessment in applications for health insurance and in the company pensions sector. Expert systems is an area of growth for the company.

h. Conclusions

Financial institutions spent an average of £4,847 per employee last year, almost twice as much as the nearest rival. Insurance topped banking and finance in investment terms, partly reflecting the higher back-office activity and IT investment in such operations by the insurance industry.

As an intensely information-orientated industry, the insurance sector provides an excellent target market for all types of software and services vendors—processing and network services, applications software products, professional services, systems integration and turnkey systems.

The industry is characterised by several large, well-established processing services vendors; an increasing number of network services providers; many applications software products companies of all sizes, which often provide other modes of information services, including processing services, network services and professional services; several medium-sized, country-dependent professional services vendors, a few of which are systems integrators; and a few medium-sized turnkey systems vendors. Processing will be centralised to perform many of the routine back-office operational processing functions. However, the success of such a move depends on the effective implementation of advanced technology solutions.

- Technology will remain the most effective vehicle for reducing processing costs and increasing productivity.

- Technology will be used to provide competitive advantage in the market. Failure to keep up with technological development will lead to competitive disadvantages.

Insurers wishing to remain major players are having to make difficult strategic decisions:

- To concentrate on the core business
- To diversify out of the traditional insurance area (For example, Munich Re and Swiss Re are offering more new services to clients, including insurance-related computer software.)

Information technology, imaginatively used, can be a powerful ally in insurance companies' efforts to cope with the volatility that has shaken the industry over the past decade.

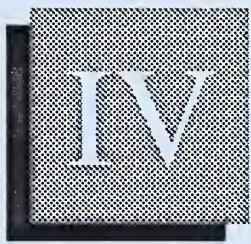
Greater expenditure will be devoted to all aspects of technological implementation. There will be increased investment in high-calibre systems personnel as well as demand for professional services. Insurance companies will continue to devote much of their attention to the internal use of technology, and will promote productivity improvements and cost containment, if not reductions.

Insurance-broking organisations will be increasing targets for improved automation, whether through more-sophisticated distributed processing systems or through automation of a wide range of clerical functions, possibly including fully automated branches and developments in new fields of application such as expert systems and artificial intelligence. Exhibit III-35 shows plans for new technology. A breakdown of leading vendors by delivery mode is included as Appendix G.

EXHIBIT III-35

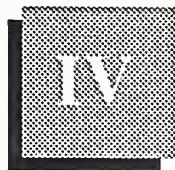
New Technology Planned

- Database management systems
- Expert systems
- AI
- CASE
- Decision support systems
- EDI interface
- Image processing
- Optical media



The Opportunity

—



The Opportunity

A

**Insurance Company
User Profile:
Assurances Generales
de France**

The information systems department is responsible for defining, developing and implementing AGF's data processing strategy. The department comprises 600 people, two IBM 390 600 mainframes and one IBM 390 400 connected to over 4,500 terminals. The department handles one million messages a day and manages the company's file library of 350 billion characters. The department's operating costs amounted to FF 450 million, just over 2% of AGF's turnover. The department is highly sophisticated at claims processing, underwriting and on-line accounting.

Out of 1,700 agents, over 600 are computerised and have complete on-line facilities. The core of the system uses IBM's DB2 database software and is one of the biggest systems of its type in France. AGF requires the processing power to sell products and services to clients through the computer network. With the increased competition, agents require a vast amount of information to advise their clients.

AGF has improved the amount of information available to customers and has set up a decision support centre. Decentralisation of many of the other functions previously handled by the mainframe in Paris are now being handled by workstations in branches. AGF has created a telecommunications network architecture that could not be confined to IBM's systems architecture, as a wide range of personal and minicomputers are used.

The information has to be accessible over Minitel terminals, and AGF is investing over \$1 million to introduce high-performance data links over the French telephone network in order to decentralise throughout the organisation.

AGF uses EC Microvax 2000 workstations specially modified, security being a prime consideration. Currently a private network based on leased lines, the move into a sales support system means there is a danger of hacking. Smartcards are helping to develop the use of personalized access codes, thereby enabling agents—via electronic mailbox—to access the central files at any time.

Although Minitel terminals cannot be used to process contracts, they are enabling agents to obtain access to sales tools—quotations, property and casualty information. AGF's objective is to enable all agents and staff to hook into the network via a simple, user friendly interface.

AGF is moving the information technology from the back office to the front office. In the past, information systems were used for payrolls, settlements, billing and collection. Now it is a competitive tool for customer service, decision support, price tailoring and communications.

AGF is looking into the design of sales and decision support expert systems that can be used by agents in the field. The decentralised approach is the key advantage.

AGF believes that France is ahead of the rest of Europe thanks to Minitel, Transpac as a data packet-switching network and its pilot ventures in ISDN. AGF is happy with its international telecommunications links. Since there is no need for continuous real-time exchange of information with locations outside of France, the amount of data is minuscule when compared to the banks.

Most of AGF's software is developed in-house. The group invests 400 person-years annually to create sophisticated applications software. Companies such as AGF will move further into product development once the French Stock Exchange is deregulated and will use financial skills to promote products for retirement and pensions. AGF will move into the brokerage business and consequently handle more products with the resultant escalation in data processing requirements.

AGF's overall objective is to lower costs of developing and implementing information systems and to improve services to maintain competitive edge.

B

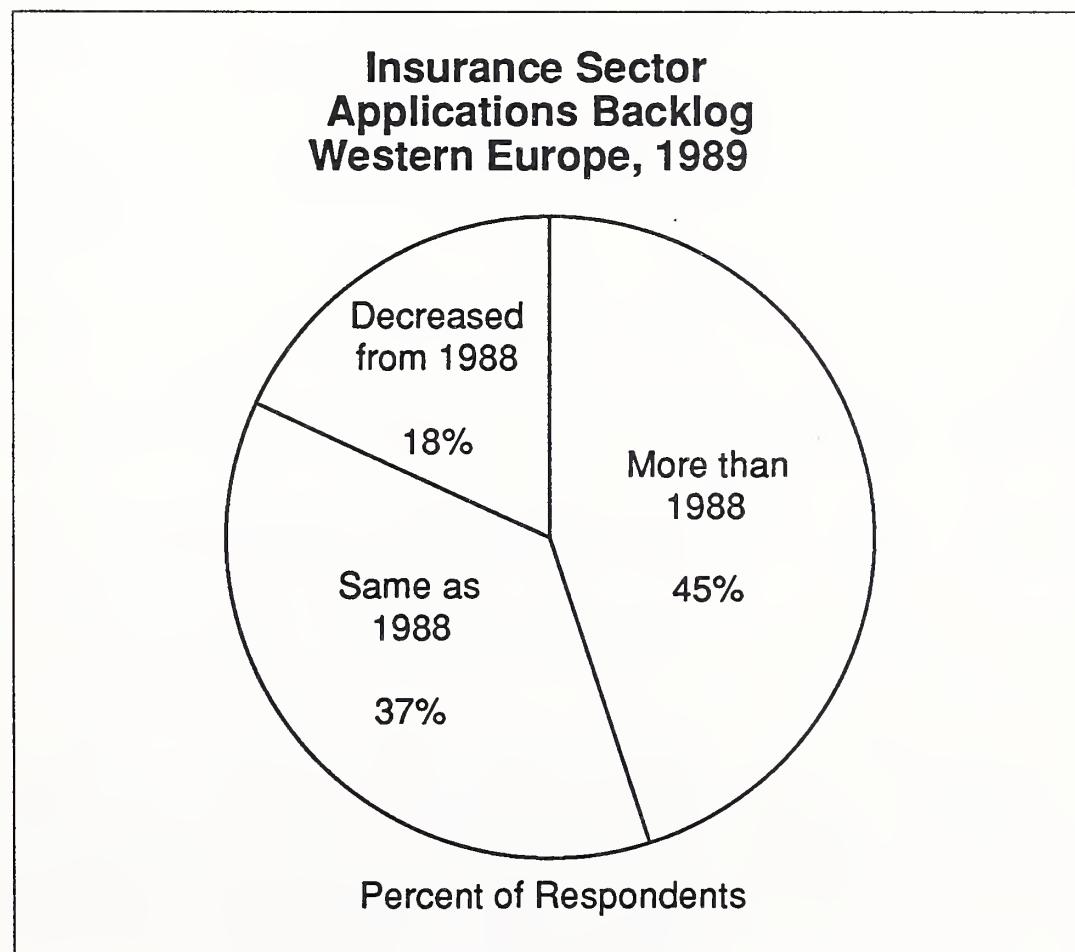
User Issues = Vendor Challenges

One of the most important factors affecting an IS budget is the level of corporate commitment to IS and the implementation of new technology. Often in the insurance industry, top management recognizes the need to invest in software and services in order to remain competitive. However, changes in projected revenues result in poor projected earnings for the year. The solution is to cut back on expenses, including those for soft-

ware and services. At the same time, expenses such as salary, office space, equipment and maintenance can increase from what was initially budgeted.

User requirements can also change. If competitors are offering new products and services, end-user departments will require systems to provide the same types of products and services. Enhancements to existing systems and the development of new systems will inevitably have an adverse effect on the IS budget. Furthermore, there is a chronic backlog of planned application development projects within insurance. In a small number of cases, the situation improved between 1988 and 1989; however, for the most part the situation worsened. These results, from a sample of users across Western Europe, are shown in Exhibit IV-1.

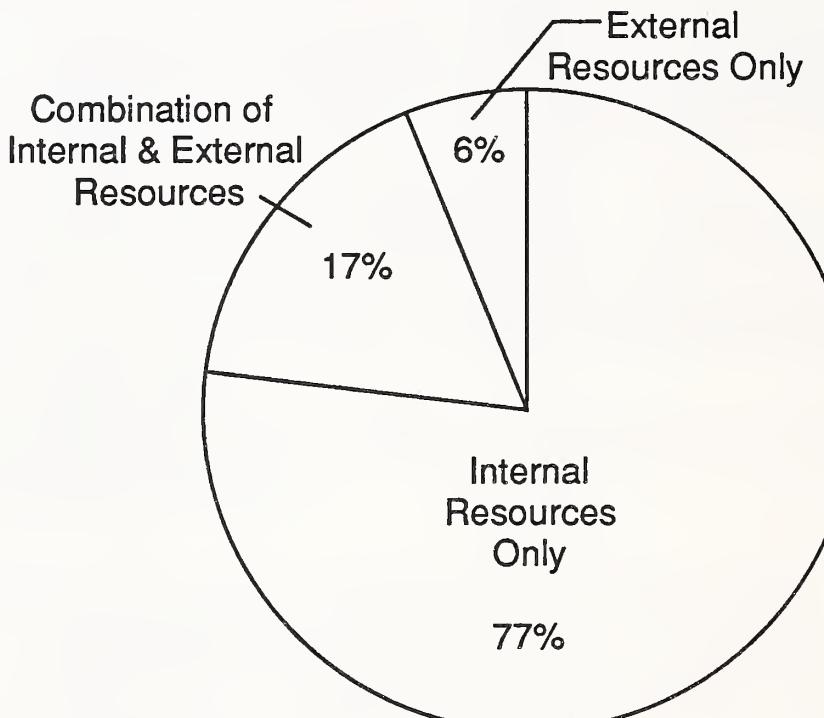
EXHIBIT IV-1



With regard to major applications development projects planned by the same respondents for 1989, almost 80% will use only internal resources—i.e., internal staff will enhance existing systems or develop new systems. Some projects planned will use external resources, such as professional services, application software products and internal resources. Only a very small number of projects will use external resources only. These results are illustrated in Exhibit IV-2.

EXHIBIT IV-2

**Insurance Sector
(Western Europe)
Application Development—
Source of Resources, 1989**

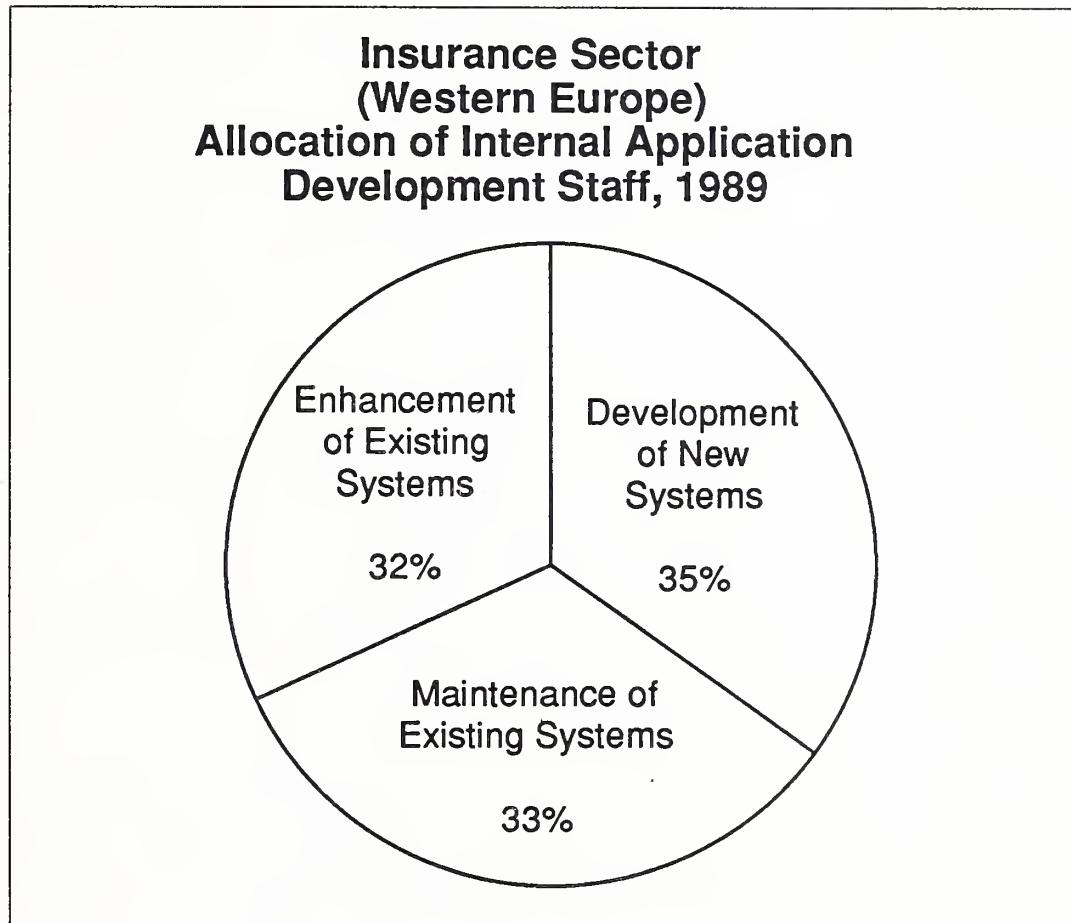


The same respondents also reported that IS application development staffs are involved—not only with developing or enhancing systems, but also with maintaining existing systems. Exhibit IV-3 gives an allocation of application development staff assignments at respondent companies.

In many cases, IS managers reported that end users are currently developing some production applications using PCs, minicomputers and mainframes. Respondents estimated that about 10% of the application development performed within their organisations was done by users. Of these applications, 50% were using PCs only, and only a small percentage (8%) used mainframes. The other applications used a combination of the three equipment platforms.

Respondents showed a high level of knowledge with regard to EDI, which until a couple of years ago was regarded very much as a nascent technology. Almost 50% of respondents are currently using or are in the process of implementing EDI for claims processing, electronic funds transfer and other application-to-application transfers. A further 19% of respondents are considering EDI; 32% have no plans to implement EDI at the current time.

EXHIBIT IV-3



There are two key objectives for IS managers (sceptics might suggest that these objectives are mutually exclusive):

- To provide users with the services they require in time and at a reasonable cost
- To reduce the backlog of application development projects and maintain ongoing operations

In order to meet user requirements, new systems have to be developed and/or systems have to be enhanced or expanded. Projects identified by respondents for 1990 include developing systems that speed the delivery of actuarial, policy and financial information to end users as well as to customers. With information-handling being such a key activity in insurance, IS managers are looking for flexible systems that can be expanded and modified for long-term use.

Integrating systems is also a key priority, especially with the wave of acquisitions currently occurring across Western Europe. Integration leads to a more efficient use of information. IS functions are being decentralized in some organisations. The applications planned by IS managers for 1990 are outlined in Exhibit IV-4; new technologies slated to be implemented in 1990 are shown in Exhibit IV-5.

EXHIBIT IV-4

New Application Areas

- Network applications
- Risk management
- On-line information
- Database management systems

EXHIBIT IV-5

New Technology Planned

- Database management systems
- Decision support systems
- EDI interface
- Image processing

Finally, most IS managers mentioned the requirement for professional services into 1990 in order to help with applications development and the training of skilled staff. A summary of the 1990 IS objectives as identified by the respondents is given as Exhibit IV-6.

Life insurance firms are dramatically increasing their investment in new technology although many of their projects are running into trouble. INPUT's user survey among IS managers showed that 84% believed new technology was important to their businesses and only 13% track the benefits and advantages of their applications on anything more than an occasional basis.

EXHIBIT IV-6

IS Key Objectives

- Meet user requirements
 - On time
 - Enhance applications
 - Integrate systems
- Efficiency
 - Reduce backlog
 - Maintain ongoing operations
 - Decentralise IS
 - Train skilled staff

THE OPPORTUNITY

Investment in information technology is now running at 15% of life assurance companies' operating expenses; there is every indication that the percentage will increase substantially. Many companies are buying packaged solutions, but there is a growing disillusionment that these solutions are difficult to install and inflexible. Companies are spending large amounts of money to put their systems in place. The developments are similar to Big Bang in the City and almost as intense. There is a growing awareness that a fundamental rethink of systems is necessary.

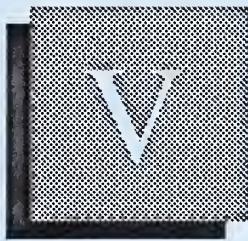
This rethink is particularly critical given the huge backlog of applications at insurance companies: users constantly need new applications, enhancements to existing ones and maintenance of existing operations. Furthermore, with consolidation occurring as a result of acquisition, IS managers are finding that they are being called upon to integrate systems as well as establish decentralised IS functions. In addition, there is a chronic shortage of skilled staff throughout Western Europe. As a result, INPUT is anticipating high growth in the professional services sector as more and more companies turn to third parties to help them carry out these changes.

Finally, for end-user departments within insurance companies, the issues are clear: access to information enables end users to offer more services and a better quality of service to customers. In addition, end users want systems that are compatible with customers' and suppliers' systems, as well as systems within the organisation. With end users becoming more involved in the application development process, INPUT anticipates that the network and software products sectors of the insurance market will experience strong growth. Vendor opportunities are listed in Exhibit IV-7.

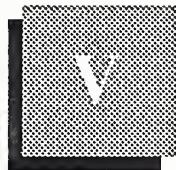
EXHIBIT IV-7

Key Vendor Opportunities

- Professional services
- Systems integration
- Network services
- AI/Expert systems
- Productivity tools



Conclusions and Recommendations



Conclusions and Recommendations

A

Summary and Opportunities

In the days of modest financial returns, investment income was an extra protection against greater-than-expected future claims. Today it is the core of profitability. Investment returns offset the frequent underwriting losses on nonlife business and underpin competitive advantage in life and savings products. Integrating Europe, changing distribution, growing competition and shrinking financial returns all argue not for a pusillanimous strategy but for a considered one. Not only Europe, but insurance itself, is changing. Risk-taking is becoming more complex.

The insurance industry exists primarily to protect against the risk of chance and it is the risk of structural change that now predominates in important classes of business. As a result, software and services opportunities for the insurance industry can be viewed from two perspectives. Firstly, software and services give insurance companies an enhanced ability to provide new products and services, improve management, increase efficiency and revenues, and reduce expenses—i.e., the opportunity for increased competitive edge and profitability.

Secondly, demand from the insurance industry creates sales opportunities for software and services vendors. Sales opportunities include providing new systems that enable competitive product and service offerings and changes in distribution channels, as well as providing expertise in systems integration and the latest technologies.

Artificial intelligence and expert systems are being developed, if they do not already exist, for a variety of insurance applications, including underwriting/risk management, claim management, adjusting, investment management, personal financial planning, policy customisation by agents and medical review analysis. Repetitive, high-volume applications that often require some kind of judgement by the insurance industry lend themselves to artificial intelligence and expert systems.

For large-scale systems development and integration, insurers will look for systems integrators with expert knowledge of the insurance industry or even of a specific subsector of the industry, along with experience in developing complex systems for the industry.

Network services, including on-line databases and networks used for electronic mail and EDI services, are used by all subsectors of the insurance industry. This market will grow rapidly over the forecast period. EDI in particular offers considerable expense and time reduction in moving data between agencies and insurers and even, ultimately, to consumers. The RINET and LIMNET networks use the IBM Information Network; the BROKERNET service uses the INS/GEIS network; the ASSURNET service uses the Transpac network to provide connectivity to thousands of organisations and agents. There are also other private networks available for EDI services to the insurance industry.

PCs are being used for many applications in the insurance industry; spending on microcomputers is expected to increase by 50% in 1990. One application includes insurance agents' use of PC software as a marketing tool. With these systems, a more effective demonstration is possible and more alternatives can be presented to a potential customer during a sales call.

Another opportunity is for vendors to provide systems for new areas in insurance—e.g., long-term disability insurance—as well as for new distribution channels, including those in foreign markets.

Most IS departments within the insurance industry plan to develop their own applications and to use external resources only as a supplement to internal resources. Even end users are developing their own applications. Therefore, the industry provides an excellent opportunity for application development productivity tools.

Areas of opportunity for software and services vendors and insurance companies are shown in Exhibits V-1 and V-2.

The key operational issues identified amongst insurance companies in order to compete with the banks are:

- Human resources
- Information technology
- Cost containment

EXHIBIT V-1

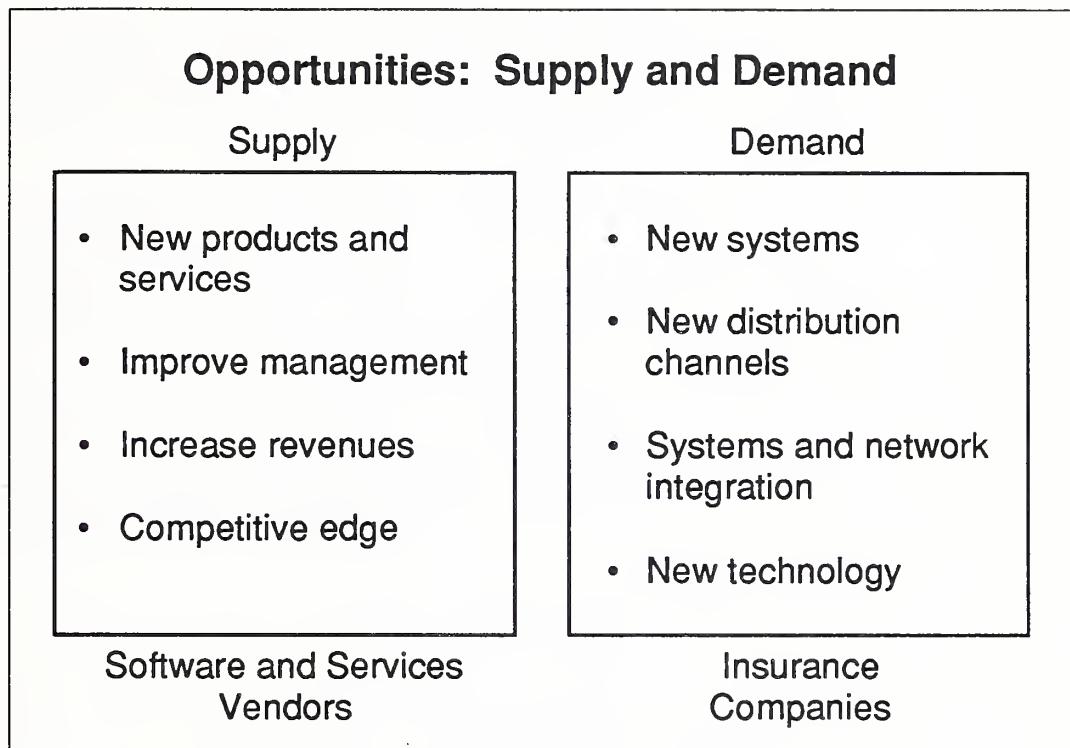
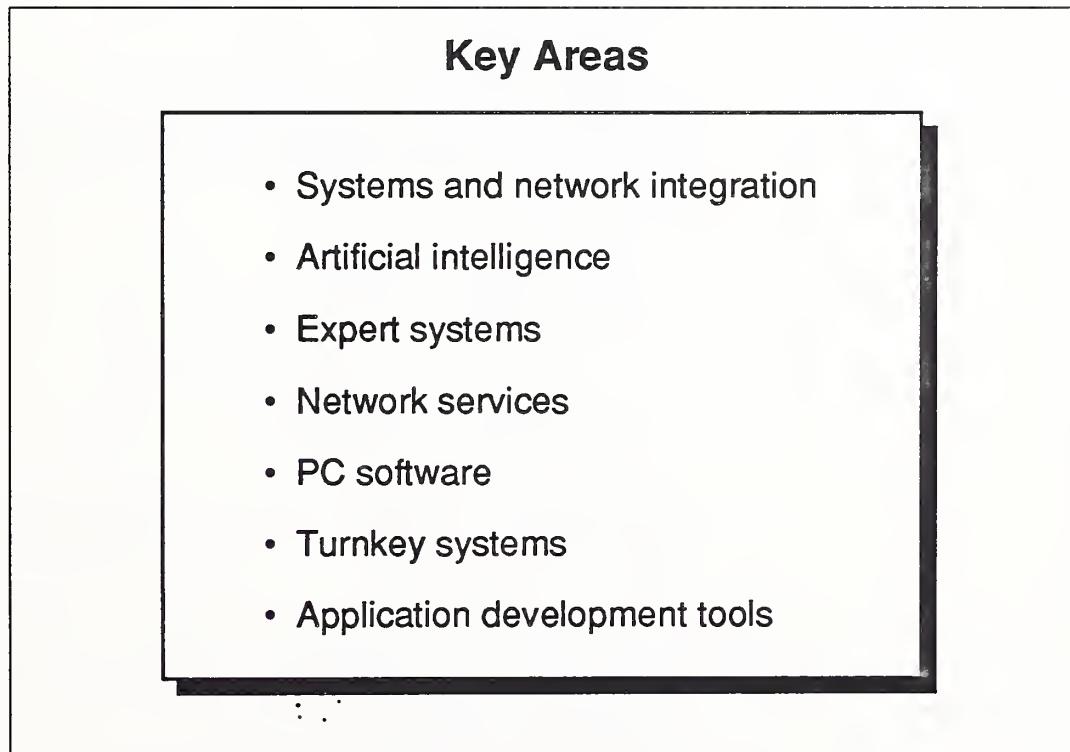


EXHIBIT V-2



The required refocussing of staff responsibility means that existing work responsibilities will have to be carried out by other means, particularly by computer. There is still enormous opportunity for reducing the volume of clerical tasks and for using technology to improve customer service and product delivery. The industry will invest heavily in client rather than policy-related systems and innovations such as image processing and expert systems. However, the past investment in technology has failed to

deliver the extra service capability or financial return expected. Future investment needs to be clearly focussed so that real progress can be made in insurance service levels and product distribution—but not by increasing overheads.

The technology can be viewed at two levels:

- Systems to process, control and service the business effectively within the current operating framework
- Systems that radically alter the way the business is carried out

The insurance industry has been trying to perfect the first type of systems since the mid-1970s and a few companies are close. These systems carry out the essentials, i.e.:

- Claims registration
- Claim acknowledgement
- Third-party instruction (adjustors, surveyors)
- Claim payment
- Claim statistics

A claims operation of insurers or brokers serves a number of masters. The provision of statistics to these people is a key element of the internal service and support function. The following are all internal clients of the claims department:

- Corporate management
- Underwriters
- Marketing

1. Corporate Management

Corporate management is a future-orientated insurer (one looking for a competitive edge in service differentiation) and requires a high level of information to maintain:

- Service level of claims
- Customer support opportunities
- Trends in complaints
- Renewal positioning of claimants
- Average time between notification and settlement

2. Underwriters

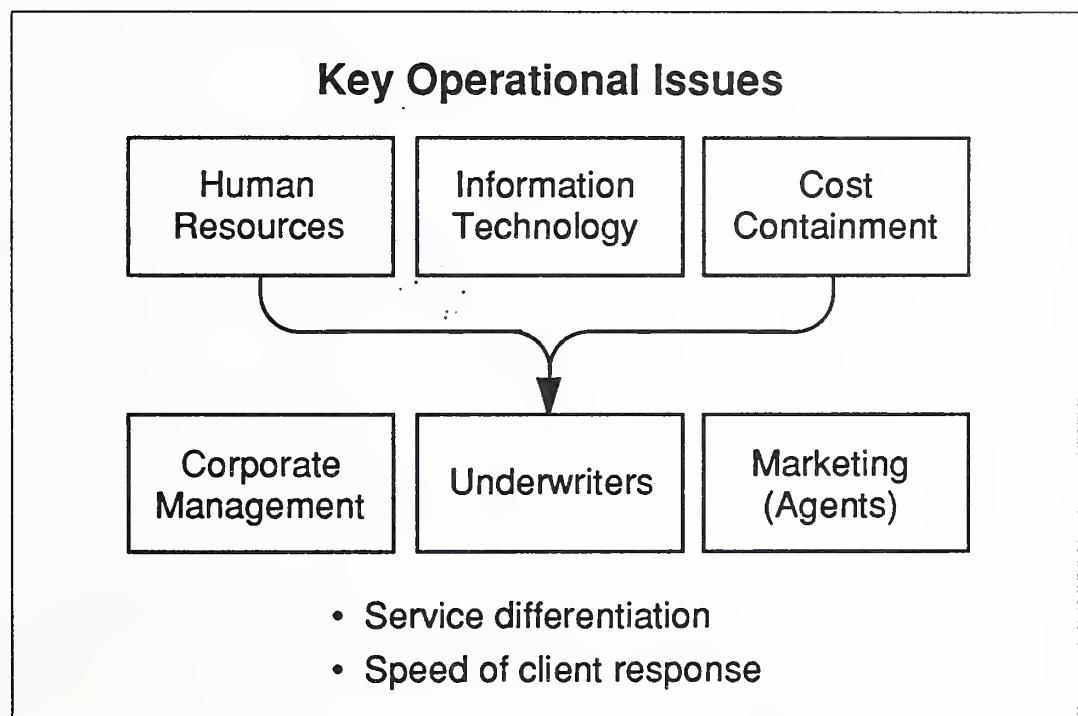
The burden of internal service will increase as underwriters attempt to target precise groups and produce different rates and marketing profiles.

3. Marketing

Will insurance continue to be sold by physical intermediaries? The argument is that life assurance and related savings products are too complex to be sold off the page. However, there are significant cost implications: figures from Eagle Star in the U.S. suggest that direct selling (by telephone or by mail) costs 10-12% of premiums; selling directly (through one's own intermediaries or outlets) costs 12-17%; selling through independent agents costs 25-30%. The gap may be narrower in Europe, where direct mail is less familiar and perhaps gets a lower response. But the comparison is suggestive and Eagle Star in the U.K. has recently taken a share in the AA Insurance Services. The AA will sell Eagle Star life assurance mainly by mailing to members as well as through its own outlets.

The key operational issues are highlighted in Exhibit V-3.

EXHIBIT V-3



The problem of how to sell to whom is particularly acute for would-be pan-Europeans. Many markets do not have well-established independent brokers. That is likely to change in time as buyers baffled by a new range of products seek unbiased advice and as brokers themselves see new opportunities. For the moment those who want to sell anything other than large risk cover, and who discount the notion that direct selling could ever be more than a minor part of a multidistributor strategy, must reckon on finding a network or building one. Neither is an easy task.

The trends for the future in the insurance software and services sector are in networks and software products. By the end of 1990, 90% of the market will be connected to LIMNET (currently 20%). Forty percent of those interviewed by INPUT saw LIMNET as providing opportunities for

underwriters to bypass brokers in dealing directly with the assured, thereby dramatically altering the dynamics of the market. The involvement of major insurance companies in software houses specialising in insurance broking and intermediary systems has had a profound effect. Only Misys and MCS are truly independent and even Misys is expanding into noninsurance software markets and may well sell the insurance-broking systems division.

The combination of networks and software can give a massive competitive edge: Policy Master's idea of giving £750,000 in technology grants is the first stage in implementing the products and services being developed with Policy Master's Validated Business System Initiative, which has the backing of most of the leading insurance companies. The network provides EDI between the broker and the insurer, electronic mail, and interactive insurer mainframe services and is geared to enable Policy Master to establish the largest number of networked insurance brokers to deliver products that Policy Master has developed with a number of insurers. Furthermore, IBM has appointed Policy Master authorised dealer for the IBM 6150 and the AIX. Insurance companies will increasingly invest in systems and communications technology in support of increasingly pan-European business operations.

In conclusion, INPUT believes that technology will be directly linked to capturing further market share—the focus will be on sales and marketing information systems and customer monitoring to exploit cross-selling opportunities to the full. An effective presence in the corporate market will be impossible without much greater use of technology; in the life and nonlife sectors, the role of transaction processing systems, for example, will be a key determinant in the ability to participate. A summary of opportunity areas for vendors is shown in Exhibit V-4.

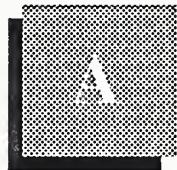
EXHIBIT V-4

Vendor Opportunities: Insurance Networks

- Integration of systems
- Links to clients/end users
- Transaction processing
- Image processing
- EDI
- Customisation
- Network applications

Appendices





Appendix: Definition of Terms

A

Revenue

- *Captive Computer Services Revenue* - Revenue received from users who are part of the same parent corporation as the vendors.
- *Noncaptive Computer Services Revenue* - Revenue received for computer services provided from users who are not part of the same parent corporation as the vendor.
- *Other Revenue* - Revenue derived from lines of business other than those defined above.
- *Total Company Revenue* - Revenue received from total computer services and other sources of revenue.
- *Total Computer Software and Services Revenue* - Revenue received from services provided by vendors that perform data processing using the vendors' computers (processing services), assist users to perform such functions on their own computers (software products and/or professional services), provide a combination of hardware and software integrated into a total system (turnkey systems), include consulting, education and training, programming analysis, and facilities management (professional services), provide for systems design, integration and installation (systems integration), or offer network, enhanced management services, electronic mail, electronic data interchange, or electronic information services (network services).

B

Service Modes

- *Processing Services*
 - Transaction Services: uses vendor equipment and software at vendor site or customer site, may be interactive or remote-batch-oriented.

- Utility Services: access to basic software tools enabling users to develop their own problem solutions (language compilers, assemblers, DBMS, sorts, scientific library routines, etc).
- Other Services: carry-in batch processing, computer output micro-film services (COM), data entry services, disaster recovery/backup services.
- Facilities Management (Systems Operations): vendor provides a complete operating information system for customer including equipment, software, personnel and facilities.
- *Professional Services* - Management consulting activity related to EDP systems consulting, production of custom software, education and training, and systems operations of client-owned computers (formerly identified as facilities management) where the vendor provides human resources to operate and manage the client facility.
- *Systems Integration* - delivery of large, multidisciplinary, multivendor systems, incorporating some or all of these functions: systems design, programming, integration, equipment, networks, installation and acceptance. Systems can encompass multiple product delivery modes.
- *Software Products*
 - Systems software and/or applications software packages purchased by users.
 - Systems Software Products

Systems Control Software: operating systems, communications monitors, network control, library control, windowing, access control, security, etc.

Data Center Management Software: capacity management, scheduling, job accounting, performance monitors, tape management, utilities, downtime repair monitoring management, etc.

Application Development Tools Software: application generators, assemblers, compilers, 4GLs, automated documentation, languages, translators, database management systems, data dictionaries.
 - Applications Software Products

Cross-Industry Applications Software: used by clients in many or all vertical markets (i.e., payroll, word processing, spreadsheets, accounts receivable).

Industry-Specific Applications Software: unique to a specific vertical market and sold into that market only (i.e., demand deposit accounting, MRP II, hospital patient tracking).

- *Network Services*

- Network Management and Enhanced Services: network management functions, network transmission facilities, augmented with computerized switching and features such as packet switching, electronic mail, store-and-forward message switching, terminal interface and error detection and correction.
- Network Applications
 - Electronic Data Interchange (EDI): application-to-application electronic communication, based on established business document standards.
 - E-Mail: a range of services that transmits documents consisting of text and graphic material to be read by a person—with the quality of document being high.
 - All other application services in which the network is the principal part of the service, e.g., electronic funds transfer and some videotex services.

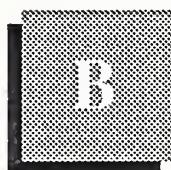
- *Electronic Information Services*

- Databases that provide specific information via terminal-based inquiry such as stock prices, legal precedents, economic indicators, airline schedules, etc.
- News services that offer current information, either general or for a specific category; i.e., financial or political
- Other services that provide interactive access to data bases and offer the inquirer the capability to send as well as receive information for such purposes as home shopping, home banking, travel reservations, etc.
- *Turnkey Systems* - an integration of systems software, packaged or customized applications software, CPU, equipment, and peripherals. These systems are developed to meet a specific set of user requirements. The value added by the vendor is primarily in the software, either packaged or custom developed. Most CAD/CAM systems and many small business systems are turnkey systems. This does not include specialized hardware systems such as word processors, cash registers, and process control systems.

C

Other Considerations

When questions arise about the proper place to count certain user expenditures, INPUT addresses them from the user viewpoint. Expenditures are then categorised according to what users perceive they are buying.



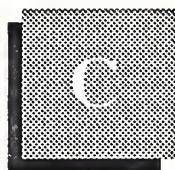
Appendix: U.S. Dollar Average Exchange Rates

EXHIBIT B-1

U.S. Dollar Average Exchange Rates

Country	Currency	Dollar Exchange Rate	Inflation Assumptions
Austria	Sch	12.77	3.0
Belgium	BF	38.06	3.2
Denmark	DK	7.05	4.5
Finland	FM	4.21	6.5
France	FF	6.17	3.5
Germany	DM	1.81	3.3
Italy	LR	1,336	5.8
Netherlands	DfL	2.05	1.8
Norway	NK	6.85	4.5
Spain	Pta	115.8	6.6
Sweden	SK	6.39	8.0
Switzerland	SF	1.61	4.5
U.K.	£	0.63	7.0

Source: Exchange rates—IMF (average rates for fourth quarter 1989)
 Inflation—Barclays Bank (1989)

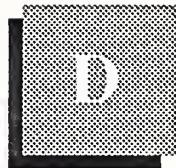


Appendix: Analysis of Research Sample

EXHIBIT C-1

Analysis of Research Sample

Country of Ownership and Trading Area	Number of Interviews	
	Vendor	User
<u>Pan-European</u>		
• U.S.	2	-
• France	2	2
• U.K.	2	2
• Germany	2	2
• Italy	1	2
<u>National Only</u>		
• France	3	2
• U.K.	3	2
• Germany	2	2
• Italy	1	2
• Spain	1	2
• Others	1	2
Total	20	20



Appendix: Vendor Questionnaire

Background Information

Q1: Types of insurance and financial services organisations served (circle as appropriate)

**Primary/Secondary
Activity**

- a. Life
- b. Nonlife/General
- c. Reinsurance
- d. Bank
- e. Building society
- f. Brokers
- g. Finance house
- h. Other

Some Other _____

Please Describe _____

Could you also indicate the size of your organisation:

Total annual turnover _____

Proportion from insurance _____ %

Current growth rate _____ % per annum

Expected future growth rate _____ % per annum

Main European market _____

Other European markets _____

Percent breakdown of European revenues by country markets _____ %

General Information Services Data

Q2: What are your principal products/services for the insurance market:

1. _____
2. _____
3. _____

And on what equipment?

1. _____
2. _____
3. _____

Comments

Q3: What do you see as the three most important issues/challenges facing you over the next few years?

1. _____
2. _____
3. _____

Could you please rank between 1 and 5 (1 being low, 5 high) the importance of the following factors according to how important they are for you:

- | Ranking
<u>(1 to 5)</u> |
|---|
| a. Moving away from centralised data processing products/services _____ |
| b. decentralised products/services _____ |

Comments

- | |
|---|
| c. The 1992 initiative of the European Commission in gradually developing a single European market during the 1990s _____ |
|---|

Comments

- | |
|---|
| d. Open international standards (e.g. OSI, UNIX, EDIFACT) _____ |
|---|

Comments

- | |
|---------------------------------|
| e. Staff/skills shortages _____ |
|---------------------------------|

Comments

- | Ranking
<u>(1 to 5)</u> | |
|--|-------|
| f. Providing links between front- and back-office systems | _____ |
| Comments | |
| <hr/> | |
| <hr/> | |
| g. Increasing OLTP offerings | _____ |
| Comments | |
| <hr/> | |
| <hr/> | |
| h. Improving the ability of your clients to access your products/services via more sophisticated terminals | _____ |
| Comments | |
| <hr/> | |
| <hr/> | |

Specific IS Questions

I would now like to ask some questions on your attitudes towards specific issues that we at INPUT believe will affect you over the next few years.

Cost

Q4: The insurance spend on equipment, software and services is 15% of revenue. Insurance companies are concerned over the cost of information services. Have you had the same experience?

Comments

Q5: Could you please rank between 1 and 5 (1 being low, 5 high) the importance of the following factors that you see as possibly being important for the insurance sector to maintain or reduce information services costs:

Ranking

(1 to 5)

a. Maximise the use of external vendors for:

- Processing services _____

- Disaster recovery _____

- Systems operations
(facilities management) _____

- Develop new integrated systems _____

Comments

b. Minimise the use of third-party networks _____

c. Maximise the use of CASE tools _____

d. Maximise the use of software products, rather than
develop bespoke software specifically for your
organisation _____

e. Maximise the use of UNIX _____

f. Obtain and keep skilled staff _____

g. Be able to meet development deadlines _____

h. Other factors _____

Comments

Security

Q6: Security is a key issue, constantly putting pressure on increasing the complexity of systems and hence on costs. Do you have any views on this?

Comments

Q7: How do you rank (1 to 5) the importance for the future developments of your products/services of:

Ranking (1 to 5)

- a. EDI _____
- b. Other network services (EFT, EIS) _____
- c. More sophisticated end-user terminals _____
- d. Others _____

Comments

Q8: The issue of how financial institutions can link their front- and back-office systems together to offer more sophisticated services has been well publicised. With regards to this:

- a. Do you offer products/services on OLTP equipment? Yes No

If Yes, what is the supplier? _____

- b. Do you, or are you planning to offer products/services linking back- and front-office systems together?

Yes No

Comments

c. What do you see as the three major issues in making this link successful?

1. _____
2. _____
3. _____

d. Do you consider the design of databases as being critical in this context?

Comments

What are your views on using relational databases?

Comments

e. Do you see that leading back-office equipment vendors, such as IBM and Unisys, are under threat from front-office equipment vendors, such as Tandem and Digital?

Yes No

Comments

Q9: Which of the following country markets do you see as leading in the development of new banking and finance systems?

- a. The U.S.
- b. The U.K.
- c. Some other European country

Comments

Q10: Which do you see as being the 3 leading software and services vendors in the banking and finance sector?

1. _____

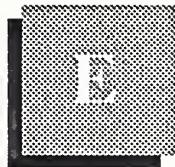
2. _____

3. _____

Comments

Conclusion

Thank you very much in allowing me to take up so much of your time. Are there any major issues that you think that we have not covered in this questionnaire that are of major importance for the next few years for the insurance market, either here in _____ (country of interview), or around Europe in general?



Appendix: User Questionnaire

Respondent should be: Senior Manager responsible for Information & Computer Services

Hello, my name is _____ and I'm calling on behalf of INPUT, an independent market research and management consultancy company that offers a series of multiclient services. One of the industries we are studying is insurance in Western Europe.

I would like to ask you a few questions as part of our research. The interview should not take any longer than 15 minutes. Is now a good time? We will send you a summary of the results on completion of the report.

Are you the person with whom I can discuss your company's strategy towards information and computer systems and services?

(If so, get appropriate name).

The answers will obviously be treated in the strictest confidence. Comments made by individual respondents are non-attributable.

Q1: What are your company's principal activities?

Q2: What is the size of your company? _____

Turnover: _____

Number of employees: _____

1989 references: _____

DP Dept. (No. of employees): _____

Q3: What is your annual budget for external computer services?

Q4: Who are your major equipment suppliers?

Firms

Q5: What are the major products (software and services) bought from third parties?

Q6: What are the most important issues facing your company with regard to achieving your information services objectives?

(Rank in order of importance)

Q7: Now I'd like to ask some questions with regard to some key factors in the development of computer-based information services. Could you please give a rating from 1-5, where 1 is low and 5 is high?

Integration of system 1 2 3 4 5

Reduction of cost of
information services 1 2 3 4 5

Improved quality of computer services

- Internal 1 2 3 4 5

- External 1 2 3 4 5

Increased use of external services by third parties 1 2 3 4 5

Increase in processing capacity 1 2 3 4 5

Improved accessibility of systems

- Internal 1 2 3 4 5

- External 1 2 3 4 5

Q8: More ratings, this time of a more general nature.

How important is the 1992 initiative and the development of the single European market?

1 2 3 4 5

Comments

Open standards

- OSI 1 2 3 4 5

- EDIFACT 1 2 3 4 5

- UNIX 1 2 3 4 5

- X.400 1 2 3 4 5 ..

Comments

Telecommunications deregulation 1 2 3 4 5

Comments

Q9: Processing Services

Are you using (or are you planning to use) any of the following?

- Transaction processing services (remote/batch processing)
- Utilities services (access to basic software tools, to develop problem solutions)
- Disaster recovery/backup services
- Systems operations (facilities management)

What do you believe are the advantages of using third parties rather than in-house?

Q10: Network Services

Are you using a third-party network (i.e., a network with transmission facilities augmented with computerised switching and features such as packet-switching, terminal interface and error detection and correction)?

If yes, which one? _____

Are you using EIS (application electronic communication based on established previous document standards)? Yes No

With how many companies? _____

Do you have an E-mail system?

External

Internal

Do you subscribe to any EIS (electronic information services), i.e.:

Databases providing specific information via terminal-based enquiry (stock prices, economic indications etc.)

Videotex services providing interactive access to databases

- If so, which ones? _____

- Do you have any comments? (Prompt - RINET, LIMNET, MEGANET)

- If you don't subscribe, why not?

(Prompt - price, security, private network, connectivity—which?)

Q11: Software Products

How important is it to buy
standard application soft-
ware products rather than
develop them in-house?

1 2 3 4 5

How important are relational data-
bases to your information services
development?

1 2 3 4 5

How important is UNIX?

1 2 3 4 5

Will you be increasing your demand for standard application software products over the next year?

Q12: Professional Services

Are you using or do you plan to use external vendors to provide you with the following:

- Consultancy
- Software development
- Education and training
- Systems operation (facilities management) using your computing facilities

If Yes, please give the main reasons for trying these services from them?

Q13: Systems Integration

Are you using or do you plan to use external vendors to provide a “total solution” (equipment, networks, software and training) for a one-off development?

If yes, please give details of this development and the reasons for choosing a third-party vendor to deliver a total bespoke solution.

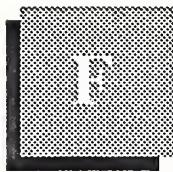
Q14: Turnkey Systems

Are you using or do you plan to use third-party vendors to provide you with standard (as opposed to one-off) total solutions of :

Equipment, networks, software and support

If yes, please give details of these developments and the vendor used.

Thank you for your help. Finally, are there any other issues that you feel ought to be raised that will be of importance in the insurance market over the next few years?

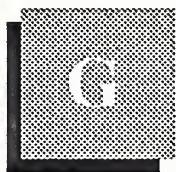


Appendix: Forecast Database

EXHIBIT F-1

Forecast Database

Country	Currency (Billions)							CAGR (Percent)
		1990	1991	1992	1993	1994	1995	
France	FF	6.20	7.40	8.80	10.60	12.00	13.9	18
U.K.	£	0.70	0.80	0.93	1.13	1.30	1.48	16
Germany	DM	2.17	2.35	2.77	3.35	4.16	4.85	17
Italy	Lira	480.00	560.00	670.00	840.00	1,070.00	1,470.0	25
Benelux	Bf	17.00	20.00	24.00	28.00	32.00	0	19
Scandinavia	SK	2.56	3.00	3.50	4.00	4.80	40.00	22
Spain	Pts	27.80	35.20	37.10	46.30	58.40	6.90	23
Rest of Europe		0.26	0.34	0.37	0.43	0.70	77.6	26



Appendix: Top Vendor Rankings and Market Shares

EXHIBIT G-1

**Top Vendor Rankings and Market Shares, 1990
Western European Insurance:
Total Market**

Rank	Company	Market Share (Percent)	Estimated Revenues (\$ Millions)
1	IBM	9	450
2	Nixdorf	4	220
3	Reuters	3	150
4	GEIS	2	110
5	Unisys	2	100
6	CGS	2	90
7	Sema	2	80
8	Andersen	1	70
9	Finsiel	1	70
10	ICL	1	60
	Other	73	3,600
	Total	100	5,000

EXHIBIT G-2

**Top Vendor Rankings and Market Shares, 1990
Western European Insurance:
Processing Services**

Rank	Company	Market Share (Percent)	Estimated Revenues (\$ Millions)
1	GEIS	9	60
2	IBM	6	40
3	Sligos	3	20
4	Unisys	2	15
5	EDS	2	15
6	GSI	2	10
7	Segin	2	10
8	Concept	2	10
9	SD-Scicon	1	5
10	CGI	1	5
	Others	70	460
	Total	100	650

EXHIBIT G-3

**Top Vendor Rankings and Market Shares, 1990
Western European Insurance:
Network Services**

Rank	Company	Market Share (Percent)	Estimated Revenues (\$ Millions)
1	Reuters	25	50
2	GEIS	15	30
3	Telerate	10	20
4	IBM	5	10
5	Istel	3	6
6	Telesystèmes	2.5	5
7	Siemens	2.5	5
8	GSI	2	4
9	Digital	1.5	3
10	SD-Scicon	1.5	3
	Other	32	64
	Total	100	200

EXHIBIT G-4

**Top Vendor Rankings and Market Shares, 1990
Western European Insurance:
Software Products**

Rank	Company	Market Share (Percent)	Estimated Revenues (\$ Millions)
1	IBM	18	280
2	ICL	3	50
3	Bull	3	40
4	Nixdorf	2	30
5	Digital	2	25
6	Unisys	2	25
7	Reuters	2	25
8	Siemens	2	25
9	Andersen	1	20
10	Sema	1	20
	Other	64	1,060
	Total	100	1,600

EXHIBIT G-5

**Top Vendor Rankings and Market Shares, 1990
Western European Insurance:
Professional Services**

Rank	Company	Market Share (Percent)	Estimated Revenues (\$ Millions)
1	IBM	5	100
2	Cap Gemini Sogeti	4	80
3	Finsiel	4	70
4	Sema	3	60
5	Andersen	3	50
6	SD-Scicon	2	30
7	Unisys	1	25
8	Nixdorf	1	25
9	Digital	1	20
10	Logica	1	20
	Other	75	1,370
	Total	100	1,850

EXHIBIT G-6

**Top Vendor Rankings and Market Shares, 1990
Western European Insurance:
Systems Integration**

Rank	Company	Market Share (Percent)	Estimated Revenues (\$ Millions)
1	IBM	15	15
2	Cap Gemini Sogeti	5	5
3	Andersen	5	5
4	Siemens	5	5
5	ICL	5	5
6	Digital	4	4
7	Bull	4	4
8	EDS	3	3
9	Logica	2	2
10	Sema	2	2
	Other	50	50
	Total	100	100

EXHIBIT G-7

**Top Vendor Rankings and Market Shares, 1990
Western European Insurance:
Turnkey Systems**

Rank	Company	Market Share (Percent)	Estimated Revenues (\$ Millions)
1	Nixdorf	33	200
2	Reuters	7	40
3	Sligos	4	25
4	Nokia	4	25
5	McDonnell Douglas	3	20
6	Hoskyns	2	15
7	Olivetti	1	10
8	Unisys	1	10
9	Telerate	1	10
10	Paxus	*	5
	Other	40	240
	Total	100	600

* = Less than 1%

Report Quality Evaluation

To our clients:

To ensure that the highest standards of report quality are maintained, INPUT would appreciate your assessment of this report. Please take a moment to provide your evaluation of the usefulness and quality of this study. When complete, simply fold, staple, and drop in the post.

Thank You.

1. Report title: ***European Software and Services Market, 1990-1995—Insurance Sector*** (MEIIO)

2. Please indicate your reason for reading this report:

- | | | |
|---|---|---|
| <input type="checkbox"/> Required reading | <input type="checkbox"/> New product development | <input type="checkbox"/> Future purchase decision |
| <input type="checkbox"/> Area of high interest | <input type="checkbox"/> Business/market planning | <input type="checkbox"/> Systems planning |
| <input type="checkbox"/> Area of general interest | <input type="checkbox"/> Product planning | <input type="checkbox"/> Other _____ |

3. Please indicate extent report used and overall usefulness:

	Extent		Usefulness (1=Low, 5=High)				
	Read	Skimmed	1	2	3	4	5
Executive Overview	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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4. How Useful was:

- Data presented
Analyses
Recommendations

5. How useful was the report in these areas:

- Alert you to new opportunities or approaches
Cover new areas not covered elsewhere
Confirm existing ideas
Meet Expectations
Other _____

6. Which topics in the report were the most useful? Why? _____

7. In what ways could the report have been improved? _____

8. Other comments or suggestions: _____

Name _____ Title _____

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Thank you for your time and cooperation.

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